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ROBERT H. LOWIE, *Editor*, Berkeley, California
FRANK G. SPECK and E. W. GIFFORD, *Associate Editors*

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CONTENTS OF VOLUME 30

ARTICLES

Hawaiian Household Customs. LAURA S. GREEN and MARTHA WARREN BECKWITH.	1
Notes on the Tête de Boule Ethnology. D. S. DAVIDSON.	18
A Pharmaco-Bacteriologic Study of Two Malayan Blow-gun Poisoned Darts. IVAN C. HALL.	47
The Fur Trader in Anthropology: And a Few Related Questions. A. G. MORICE.	60
Rio Puerco Ruins. THOR WARNER.	85
Probability and the Diffusion of Culture Traits. WILSON D. WALLIS.	94
"Jumping Over" from West Africa to South America. W. C. MACLEOD.	107
The Cultural Position of the Coast Yuki. EDWARD WINSLOW GIFFORD.	112
The Early Geometric Patterned Chilkat. MARY LOIS KISSELL.	116
Two Aleut Tales. T. I. LAVRISCHEFF.	121
Ethnographical Notes on the Black Carib (Garif). EDUARD CONZEMIUS.	183
Sun Worship in the Southeast. JOHN R. SWANTON.	206
Cremation and the Preservation of the Dead in North America. EDWIN OLIVER JAMES.	214
The Lead Glaze Decorated Pottery of the Pueblo Region. WALTER HOUGH.	243
Gaspar Antonio Chi, Interpreter. FRANK BLOM.	250
A Note on Relationship Terminologies. ROBERT H. LOWIE.	263
A Prehistoric Village Site in Greenup County, Kentucky. WILLIAM S. WEBB.	268
The Calpolli Barrio in a Present-day Mexican Pueblo. ROBERT REDFIELD.	282
Quantitative Method in Ethnography. FORREST E. CLEMENTS.	295
The True Story of a Little Stone Image. FRANCES DENSMORE.	311
A Peculiar Type of Stone Implement. JULIAN H. STEWARD.	314
Culture Areas in Madagascar. RALPH LINTON.	363
Maya Inscriptions VI: The Lunar Calendar and Its Relation to Maya History. JOHN E. TEEPLE.	391
Mentawai Social Organization. E. M. LOEB.	408
Notes on Two Maya Astronomic Observatories. OLIVER RICKERTSON, JR.	434

Notes on the Pima, 1926. <i>ELSIE CLEWS PARSONS</i>	445
The Earliest Ornamental Metal Work. <i>GEORGE BRINTON PHIL- LIPS</i>	465
That Question of Racial Inferiority. <i>G. H. ESTABROOKS</i>	470
A Prehistoric Skeleton from Grassy Island. <i>EDMUND B. DELA- BARRE</i>	476
Edward Sandford Burgess. <i>ROBERT H. LOWIE</i>	481
Summary Report of Field Work at Acoma. <i>LESLIE A. WHITE</i>	559
Norse Ruins in Labrador? <i>THERKEL MATHIASSEN</i>	569
Genna in Southeastern Asia. <i>MILTON KATZ</i>	580
The Laguna Migration to Isleta. <i>ELSIE CLEWS PARSONS</i>	602
The Family Hunting Territory in Australia. <i>D. S. DAVIDSON</i>	614
Economic Aspects of Indigenous American Slavery. <i>W. C. MACLEOD</i>	632
Christmas Fiestas of the Cupeño. <i>PAUL LOUIS FAYE</i>	651
Ethnological Notes on the Ojibwa of Southeastern Ontario. <i>PAUL RADIN</i>	659
Notes on the Depopulation of Aboriginal America. <i>M. G. SMITH</i>	669
Notes on Central Pomo and Northern Yana Society. <i>E. W. GIFFORD</i>	675

BOOK REVIEWS

ANET: The End of a World. (<i>Clements</i>).....	125
SAWTELL and TREAT: Primitive Hearths in the Pyrenees. (<i>Clements</i>).....	126
BROWN: Archaeology of Mississippi. (<i>Schenck</i>).....	127
D'HARCOURT: La Musique des Incas et ses Survivances. (<i>Leh- mer</i>).....	131
BLOM and LA FARGE: Tribes and Temples. (<i>Kroeber</i>).....	133
University of California Publications in American Archaeology and Ethnology. (<i>Mason</i>).....	135
MITRA: Prehistoric India, Its Place in the World's Culture. (<i>Kroeber</i>).....	140
COLLET: Terres et Peuples de Sumatra. (<i>Loeb</i>).....	141
SCHRÖDER: Nias. Ethnographische, Geographische en Histor- ische Aanteekeningen en Studien. (<i>Loeb</i>).....	146
LOEB: History and Traditions of Niue. (<i>Mead</i>).....	151
ROBERTS: Ancient Hawaiian Music. (<i>Loultit</i>).....	155

LINDBLOM: The Use of Stilts, especially in Africa and America. (<i>Lowie</i>).	157
WEIDENREICH: Rasse und Körperbau. (<i>Kroeber</i>).	158
BEAN: Publications by. (<i>Shapiro</i>).	160
HERRICK: Brains of Rats and Men. A Survey of the Origin and Biological Significance of the Cerebral Cortex. (<i>Fern- berger</i>).	161
ABBOTT: Historical Aspects of the Immigration Problem. Se- lect Documents. (<i>Young</i>).	164
HOYT: Primitive Trade: Its Psychology and Economics. (<i>Krie- ger</i>) (<i>Smith</i>).	166
HANKINS: The Racial Basis of Civilization, a Critique of the Nordic Doctrine. (<i>Lowie</i>).	317
LOWIE: The Origin of the State. (<i>Lasswell</i>).	319
MURPHY: Primitive Man, His Essential Quest. (<i>Wallis</i>).	321
MALINOWSKI: Myth in Primitive Psychology. (<i>Angulo</i>).	322
HOCART: Kingship. (<i>Wallis</i>).	326
KÜHN: Beziehungen und Beeinflussungen der Kunstgruppen im Paläolithikum. (<i>Lowie</i>).	327
WESTERBY: Stenalderbopladserv ved Klampenborg nogle Bidrag til Studiet af den Mesolitiske Periode. (<i>MacCurdy</i>).	329
ALLISON: The Antiquity of the Deposits in Jacob's Cavern. (<i>Nelson</i>).	329
JOHNSON: Animal Stories the Indians Told. (<i>Hough</i>).	336
TRIMBORN: Familien-und Erbrecht im praekolumbischen Peru. (<i>Kroeber</i>).	336
SCHEBESTA: Bei den Urwaldzwerger von Malaya. (<i>Lowie</i>).	483
Ceylon Journal of Science. (<i>Gifford</i>).	486
JOCHELSON: The Yukaghir and the Yukaghirized Tungus. (<i>Lowie</i>).	487
PETRI: The Reindeer-breeding of the Karagas. (<i>Jochelson</i>).	490
LUNDBORG and LINDERS (editors): The Racial Characters of the Swedish Nation. <i>Anthropologia Suecica</i> MCMXXVI. (<i>Gifford</i>).	491
In Commemoration of M. A. Castren on the 75th Year from his Death. (<i>Jochelson</i>).	493
TAYLOR: Environment and Race. A Study of the Evolution, Migration, Settlement and Status of the Races of Man. (<i>Leighly</i>) (<i>Handy</i>).	685

JENKS: Prehistory Chart. Types of Men and Cultures in the Glacial Age. (<i>MacCurdy</i>).....	692
SCHMIDT: Die Sprachfamilien und Sprachenkreise der Erde. (<i>Kroeber</i>).....	693
MOIR: The Antiquity of Man in East Anglia. (<i>Nelson</i>)..	696
Northern Mongolia. (<i>Jochelson</i>).....	699
BODDING (editor): Santal Folk Tales. (<i>Loeb</i>)....	705
WORRELL: A Study of Races in the Ancient Near East. (<i>Lutz</i>).	706
KAUDERN: Musical Instruments in Celebes. (<i>Dixon</i>)..	709
GRINNELL: By Cheyenne Campfires. (<i>Kroeber</i>).	710
DENSMORE: The American Indians and Their Music. (<i>Gunther</i>).	710
RADIN: The Story of the American Indian. (<i>Kroeber</i>).	711
EBERT: Reallexikon der Vorgeschichte. (<i>Lowie</i>).....	714
VAVILOV: Studies on the Origin of Cultivated Plants. (<i>Lowie</i>).	716

DISCUSSION AND CORRESPONDENCE

A Note on Kalmuks in Belgrade (Prince), 341. Certain "Writings" of Northwestern Indians (Reagan), 345. Pottery from Deep Springs Valley, Inyo County, California (Steward), 348. A Long Island Find (Goddard), 349. Note on St. Lawrence Island (Moore), 349. In Re Jacob's Cavern (Allison), 544; (Nelson), 547. A Danish Contribution Towards the Comprehension of Eskimo Culture (Rasmussen), 548. A Winnebago Explanation of Effigy Mounds (Densmore), 730. Why Not More Care in Identifying Animal Remains? (Merriam), 731. The Glozel Affair (Peabody), 732.

ANTHROPOLOGICAL NOTES AND NEWS

Southwestern Archaeological Conference, 172. The Rawson-Mac-Millan Arctic Expedition of Field Museum, 173. Mr. Allison's Theory of the Mound-Builders, 173. Researches of Russian Anthropologists, 351. American School of Prehistoric Research 351. Linguistic Society, 354. An Announcement Regarding the New Journal of Abstracts in the Social Sciences, 551. Social Science Research Council, 553. XXIII International Congress of Americanists, 554. A Prehistory Chart, 555. "Africa," a New Journal, 555. A Bill to Promote Ethnological Research Among the American Indians, 733. Expedition to Russian Turkestan, 734. Ancient Skeletons from Algeria, 735. Study of the Hareskin

Indians, 736. Recent Indian Mound Builders, 737. Museum of the American Indian Curtails Work, 738.

MEETINGS AND REPORTS

Archaeological Field Work in North America During 1927.	501
Central Section, American Anthropological Association . . .	524
Proceedings of the American Anthropological Association for the	
Year Ending December, 1927	532
Anthropological Society of Washington, 1927.. . . .	725

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No. 1

HAWAIIAN HOUSEHOLD CUSTOMS

BY LAURA S. GREEN AND MARTHA WARREN BECKWITH

THE HOUSE

THE ANCIENT Hawaiians lived in thatched houses of rectangular shape, the roof sloping from a ridgepole much as in our own cottages of wood and shingle. An ancient house-site at Opihikao in Puna district of the island of Hawaii shows a laid stone platform as foundation for the house.

The parts of the house were all named.¹ The central post of the house was called *pou*, a name also applied to the mast of a canoe. The ridgepole was called *kaupaka*, the word *kau* being also applied to the horizontal pole hung over a canoe to support the mats that served for its protection. The rafters were the *kua*, or "back"; the cross-sticks which held the thatch in place were the *a-a-ho*; the outer walls of the ends of the house in distinction from the sides were called *kala*; the lintel was the *lapa kauila*, shortened to *la-pa'u-i-la*; the low opening at the back of the house just wide enough for a person to crawl through was the *puka pakaha*, or "narrow door."

The material used in thatching depended upon the locality.² A coarse wild grass filled at seeding time with sharp stickers (*pili*), which grows near the seashore but was also carried inland for thatching, gave the name of *hale pili* to the thatched house.

¹ The terms here given differ in some respects from the much fuller nomenclature recorded by Malo, *Hawaiian Antiquities*, 158-167. Cf. Fornander, *Memoirs of the Bernice Pauahi Bishop Museum*, 5: 640-656.

² For full information as to old thatching practises see Fornander, *op. cit.*, 644-646, 650-656.

A species of reed with a lily-like leaf, called *uki*, was well-nigh universal. Leaves of the *ki* plant (called *la-i*) and of the wild banana (*maia*) were to be had in the mountains; near the sea grew the pandanus (*lauhala*). Sugar-cane (*ko*) leaves were also used; as the proverb says, *Ke makeke mai nei ka hale ki; a po, aulani i ka hale ko*, where the play is upon the words *ki* and *ko*, because the leaves of both were employed in thatching the house.

There were special precautions to be taken in placing and in constructing the house so as to insure good luck.³ Even today, when a house is to be built, a special kind of priest is summoned whose business it is to select a lucky spot for the house.⁴ The members of the family tell their dreams and the priest interprets them so as to show where the house ought to be placed. After the foundation is laid, a feast is given to assure success to the house. A pig is roasted either in the front or side yard, and all friends are invited to partake. No part of the pig is to be given to dogs and at the end of the feast all the bones are carefully collected and buried.

Some signs are of general implication. If a new house is built on an old site the tenants will die off quickly. A house built behind another turns away tenants from the other (called *kipaku*, to "turn away"), and is unlucky also for the tenants of the new house. Doors should not be placed opposite each other so that one entering the front door can see out of the back, or luck will come in at one door and go out at the other. A beam in front of the door is like a scaffold to hang a person on. Nor should one sit or stand in the middle of the doorstep.⁵ Old Kane worshippers placed a house always to front the east, and today a house is considered more lucky if it fronts the east or the sea.

In ancient days a Hawaiian household required a number of houses to supply the needs of the sex taboos.⁶ Men and women

³ For full details see Fornander, *op. cit.* 6: 58-64; 66; 76-82, and compare the Chinese practises of Feng-shui.

⁴ A *kahuna kilokilo*, or divining priest, as distinguished from the *kahuna anaana* who practises sorcery, the *kahuna nanauli* who tells fortunes, the *kahuna lapaaui* who practises medicine; etc.

⁵ According to Malo, page 114 and note, a special god presides over the doorstep, called Kane-hohoio or Kane-noio.

⁶ See Malo, 50-53.

did not live in the same houses, and although the husband might enter the women's house it was forbidden to the wife to go into the men's house. During her monthly period, moreover, the woman must withdraw to a small house called the *hale pea* which was surrounded by a fence near which her relatives left her food. It was furnished with cushions made of waste pieces of *kapu* cloth stuffed with the fuzz from the root-stock of a tree-fern (called *pulu*) on which the woman sat or lay and which were afterwards destroyed by being buried in the ground under the mats of the house. The same taboo, called the taboo of Iu ("sacred" or "inviolable") was imposed upon women after childbirth. A bath in the sea or in salt water followed the period of retirement.

EATING CUSTOMS⁷

Each sex, husband and wife, had a separate house for the preparation and eating of food and a separate oven in which it was prepared. The task of preparing the food seems to have fallen upon the men.⁸

The old Hawaiians sat on the floor to eat, not cross-legged which is considered a "proud" attitude, but sideways, called *noho kapae*. Chiefs sometimes lay and leaned upon their elbows because thus they could be fed if they so desired.

There were two methods of such feeding. Either the *kahu* or "keeper" dipped a finger into the dish of pounded *taro* root, made a ball and, holding it over, dropped it into his master's open mouth, the fish or other relish being served in the same way; or he first mixed the vegetable and the relish by masticating both together in his own mouth and then conveyed the chewed mass directly from his mouth to his master's. This last was a form of feeding well liked by chiefs. It was called *ai puā*, "bundled together," and the other form *ai kau*, "placed above." Parents also fed their children by placing portions of food with the fingers from their own mouths into that of the child, called *ai kihele*, but the *ai*

⁷ Malo, page 67, has a chapter on "articles of food and drink in Hawaii."

⁸ In Fornander (op. cit. 5: 648) it is said that the Hawaiians ate when they were hungry, not together. Calabashes of food were set along one side of the house so that anyone who was hungry could help himself at any time he pleased.

puá was the common method. Miss Green has seen both methods practised in feeding children. The following story told in Hawaiian by Mrs. Pukui illustrates the feeding etiquette in a chief's household.⁹ It must be remembered that the child of rank was a divinity whose head could on no account be touched by a person of inferior rank; the office of keeper therefore was a very sacred charge since the etiquette accompanying the daily routine of living had the nature of a ritual.

KA MOOLELO NO KA HANAI ANA O KEKAHI KEIKI ALII

Mamua o ka hele ana o kekahi alii o Hawaii i ke kauhā, kauoha aku nei oia i kona kahu e malama i ke kaʻpu o kana keiki uuku, a e hanai i ke keiki, a hoi mai oia. Hooke no ke kahu ma na ano a pau.

I kekahi la, nele iho nei lakou i ka ia—nolaila kahea aku nei oia i kana keiki, o eono makahiki, a kauoha aku nei ia ia e malama i kona kahu opio.

I kona hele ana i kahakai, uwe iho nei ke keiki alii i ka pololi. Kii aku nei ke kahu iki i ka umeke ai a me ka ipu kai, a hoohono ihola iluna o ka moena.

Ua maa ke keiki a ke alii i ka "ai kau," me ka "ai puá," a ua lilo no hoi keia i hana nui no ke kahu iki.

Ua lohe oia i kona makuakane, he kaʻpu ke poo o keia alii iki, nolaila aole oia i paa mahope o ke poo, aka, ua apo mai ma ka poohiwi. No ka hemahema ia ia ka "puá," hanai "kau" aku nei oia, a maona ke keiki.

Aole laua nei i manao ua hoi mai ke alii o lakou, a ke kilo mai nei ma ka puka. Ike oia i ka ihiihi o ka lawelawe ana a keia keiki uuku i kana keiki, nolaila hoohihi aku nei oia e lilo mau keia keiki i kahu no kana kamaiki.

I ka hoi ana mai o ka makuakane o ke keiki, puiwa oia i ka ike ana i ke alii; komo mai la ka manao hau pu e hoopai ia ana oia i ka hoohemahema i kona kahu opio. Hookoko mai nei oia me ka pihoihoi; aka, i kona lohe ana i ka maikai a me ke akakai o kana keiki i ka malama ana i ke kaʻpu o ke alii, hoololi ia kona pihoihoi i ka hauoli.

Hoi no ke keiki a ke alii me kona makua, hoi no me kona kahu opio.

Ina ua malama ole keia keiki i ke kaʻpu o ke alii, ka hoopai, oia no, ka pepehi ana o ke alii i ua keiki nei, a me ka makuakane, pu

THE STORY OF THE FEEDING OF THE YOUNG CHIEF

A certain chief of Hawaii before going to war charged one of his trusted servants to keep the taboo and care for his little son until his return, a charge which the keeper fulfilled in every particular.

One day, the supply of fish having failed, the man called his six-year old son and commanded him to care for his young master.

After he had left for the shore, the royal child cried with hunger. The small nurse fetched the calabash of vegetable food and that in which meat was kept and placed them on the mats of the floor.

⁹ Malo says that "when a tabu-chief ate, the people in his presence must kneel, and if anyone raised his knee from the ground, he was put to death."

The baby chief had been accustomed to being fed either by the *kau* or the *puā* method, a practise which complicated matters for the young nurse.

He had learned from his father that the head of the chief was taboo, hence he did not place his hand back of the child's head but grasped him by the shoulder. As the *puā* fashion was awkward for him, he fed the child by the *kau* fashion until the child was satisfied.

The chief, who had not been expected back so soon, was all this time watching the performance at the door. He noticed with what reverence the small boy treated his son and forthwith coveted him as a constant attendant for his beloved child.

When the keeper returned, he was alarmed at sight of the chief and quick troubled thoughts came to mind lest he be punished for neglecting his charge. Fearfully he drew near, but when he heard of the skill and gentleness of his boy in keeping the royal taboo his fear was turned to joy.

The royal child returned home with his father, and with him went his young nurse.

Had this boy neglected to keep the taboo of the chief, the punishment of death would have fallen upon both the boy and his father.

A few customs in connection with the folk-lore of food are still in use today among old-fashioned people. When an old Hawaiian receives a cup of *awa* or any other intoxicating liquor to drink, he will dip the index finger of the right hand into the cup and sprinkle the drops over his shoulder, saying, "*E* (name of a god) ! *eia ka ai kaua*, *a ooe e* (name of the family deity) *hele mai kaua e inu*" that is, "O—! here is food, come, let us eat and unto this—let us drink!" After this he could enjoy his liquor as he pleased.¹⁰

Mrs. Pukui's grandmother never allowed a matter of importance to be mentioned after the calabash of pounded *taro* root had been placed upon the table. If one of the children mentioned, for example, a trip to Olaa she would say, "*Kahaha! ke hoole mai nei ka umeke poi*," that is, "Indeed! the poi bowl does not consent to it."

Biting the lips or the lining of the mouth when eating is a sign of something good to eat about to be received. Spilling something is a sign that some one is coming hungry.

FISHING CUSTOMS

Kanaka-o-kai ("Man-of-the-sea") is the great god of the sea.

¹⁰ Fornander (6: 72 note) mentions the custom in sorcery practise.

Ku-ula and Hina, his wife, are invoked as the gods of fishing,¹¹ but in addition to these universal gods, each district has its own special fish-god in the shape of some fish, plant, or, more commonly, some rock which is supposed to attract the fish to that particular locality. Many old stone fish-gods are to be seen about the coast of Hawaii where offerings are still laid by fishermen. One was pointed out to me on the beach at Waialua¹² and another is sunk in a brackish pool near the beach below Hiilea in Kau district. This last is one of a pair which used to entice the fish through a causeway into the pool until freshets broke away the walls, when the discouraged votaries sold one god to a collector. An old Hawaiian woman named Walanika says that in old days a diviner (*kilo*) named Kukalia lived in Manoa valley back of Honolulu near the place where the Castle Home now stands. He kept watch over the ocean, and when he saw how selfish the men at the shore were who drew up the nets of fish, he caused great numbers of fish to swim up the stream into an *umeke*-shaped rock to supply fish for the people of the valley. Walanika herself used to get fish there, but now the basin is filled with trash and has neither water nor fish any more.

When men are out fishing,¹³ all inquiries as to their whereabouts should receive non-committal answers. One says that they have perhaps gone to the mountains after leaves, or, if they are engaged in river fishing, that they have gone to a certain beach. This is to put unfriendly spirits off the track who might otherwise follow the fisherman and make him trouble. The word "death" (*make*) should not be mentioned or the name of a deceased friend, lest spirits be summoned who will deceive the fisherman as to where to cast the net. The people at home must refrain from

¹¹ "Through Kuula all the different methods of fishing and the fishes became established throughout these islands," and the story of their establishment and the methods of fishing so taught are described fully in Fornander, 6: 172-190. For the legend of Kuula and of Ai'ai, his son, see Thrum, *Hawaiian Folk Tales*, 215-249; Fornander, 4: 554-558.

¹² See Thrum's version of the legend of Kaneaukai, *op. cit.*, 250, and Fornander's story of Hinaaimalama, 5: 272. It was the Hina in this story who "turned the moon into (vegetable) food and the stars into fish."

¹³ Compare Malo, 274-281, and Fornander, 6: 118-120; 190, note 72.

dancing and singing the *hula* lest their merriment be turned to grief. A fisherman can tell by observing the actions of certain fish whether the family at home are behaving properly. If the fish wag their tails and sport about, this is a sign that the family is enjoying itself; the man should go home and beat his wife in order to insure luck the next time. If while out fishing the man sees a number of *uhu-kai* fish touching noses he knows that his wife is unfaithful.¹⁴ A bird-catcher comes to the same conclusion if he sees birds billing while he is away from home bird-hunting.

Those who accompany a fishing excursion must refrain from eating sea-moss or shell-fish until the fishing party have returned, lest the god of the sea be angry and raise a storm. No one should eat the fish until the first one caught is offered to Kanaka-o-kai by placing it on a crude stone altar dedicated to the many gods of the sea.

A number of omens are quoted in regard to the use of fishing utensils.¹⁵ A hook made from the bone of a hairless person brings great luck in fishing; so does a hook made from the bone of a good fisherman. Should an eel or a crab (*elekuma*) catch upon a hook, the hook will ever after be unlucky and is generally thrown away. Should anyone walk or sit on a fish-net or pole, that net or pole will be unlucky. Should one step over fish-bait in a container the fish will reject the bait; such bait must be thrown away and fresh bait prepared. It is unlucky for one on the way to fish to hear the call of the "canoe bird," the woodpecker called *elepao*. Its note is said to resemble the words *Ono ka ia*, "Good is the taste of the fish," interpreted by Mrs. Pukui as a kind of taunt,—*"I like fish, you will get none!"*

Other signs connect the fate of the fisher or bather with the spirit world. If the fisher sees a bright dazzling light moving over the surface of the ocean at night he should go home at once, as this is a sign of spirits abroad. If he hears a sound in the sea as if one had thrown a stone into it, some spirit has evil designs against him. The same is true if a crab or a small fish "with-

¹⁴ See Grey's story of Manaia, *Polynesian Mythology* (2nd. edition), 138, 139.

¹⁵ Malo (page 109) lists some of the names given to the different kinds of fish-hooks used in ancient times.

only-one-tooth" (*kuniho-kahi*) bites at his toe. This omen shows him that an enemy has called upon his shark *aumakua* to destroy the fisher. The presence of a shark is indicated to him if an *ulua* or an *opelu* fish (these two being fishes friendly to man) strikes his leg with its tail or if a turtle rises quickly and stays on the surface for some time in front of a swimmer. A bite from an eel means that the person bitten has done something to offend his *aumakua*. When sharks toss their victims about on the surface of the water as they chew the limbs, it is a proof that they are the emissaries of a sorcerer. The presence of a shark is indicated by an unusual warmth in the sea as sharks are believed to be closely related to the volcano goddess. If the sea is luke-warm, an eel is near. A stream that is turbid is inhabited by an eel; one that is limpid, by a *moo*.

Hawaiians living in the mountains watch the bearing of certain fruit-trees to tell when particular fish are to be had. When bread-fruit trees bear, they say it is squid season; when the mountain apples (*ohia*) are ripe, the sea-eggs (*wana*) will be fat and plentiful; when the pandanus (*hala*) ripens it is the season for shell-fish (*hau-ke-uke*). In this way the farmers gauge the time to go fishing.

It is said that those fish which have a foul odor like the *palani* and *kala* can be rid of it by holding the fish on the palms of both hands with the head turned to the left and the tail to the right and blowing over the fish from head to tail, then expelling the breath with the head turned away and blowing in similar fashion upon the other side.

If a fly falls into a dish of fish, the owner may expect to receive fresh fish before sun-down.

In dividing a fish a man should always give his neighbor the head end lest the neighbor's *aumakua* be angry and cause his feet to wag back and forth like the tail he has offered to his neighbor.

Sea-bathing has also its rituals. Mrs. Pukui's grandmother taught her grandchildren before venturing into the sea to pacify the unfriendly spirits inhabiting both land and water by grasping a handful of edible sea-weed (*limu*), breaking it in two and throwing half ashore with the words "*Ko uka, no uka no ia!*" ("Of land

for land is this") and the other half seaward saying, "*Ko kai, no kai no ia!*" ("Of ocean for ocean is this").

To bring about a good sea for surfing the custom still is to lash the water with a length of the common convolvulus vine of the seashore crying, "*Pii mai, ka kai, a nui!*" ("Swell, sea, mightily!").¹⁶

PLANTING CUSTOMS

The influence of mimetic methods of planting upon the success of crops is occasionally to be observed in modern folk usage.

Plant sweet potatoes on the day of the full moon. To insure size, place a little cutting between each finger of the "planting hand" (the right) and, spreading the fingers, draw them tightly together again before dropping the cuttings into the ground, as if holding a big potato, at the same time making use of exclamations extolling its prodigious size.

Plant water-melons on the day after full moon, called *mahealani* ("full moon") to insure fullness in the fruit. The seed should be soaked over night in a bowl of water sweetened with sugar or honey. In the morning lock the fingers of both hands together to form a cradle and dip the hands into the bowl, take up as many seeds as will remain in the locked hands, then, holding the elbows crooked as if carrying a huge melon, stagger to the hole prepared for the planting and drop two or three seeds into each by means of unlocking the fingers and letting the seeds slip through.

Squash seeds are planted in the same way, but without the

¹⁶ The point seems to lie in the pun on the name of the vine, which contains the syllable *hu*, "to well up." See Fornander, 6: 206 for the full incantation:

*Ku mai! ku mai! ka nalo nui mai Kahiki mai,
Alo poi pu! ku mai ka pohuehue,
Hu! kaikoo loa*

Arise! arise! great surfs from Kahiki,
The powerful curling waves. Arise with the (sea convolvolous)
Well up! long raging surf!

¹⁷ Hawaiian methods of agriculture are detailed in Fornander, 6: 160-170; lucky days on pages 120-124; the significance to farmers of the month Ikiiki (April to May) on page 142. Malo has a chapter on agriculture, pages 269-273, as also in the chapter on foods, pages 67-70.

sweetening process. Sometimes the day after *hua*, when the moon is egg-shaped, is that chosen for planting squash or melon.

Flower-seed is planted after *mohalu*, the night when the moon begins to round, so that the blossoms will not grow crooked but will form perfect blooms.

Bananas should be planted on the day before or after the night called *muku*. This is the night on which the moon disappears and the month ends. The saying is that the lesser god, Muku, descends to Milu at this time to report the wrongdoings of men. Sorcerers fear and hate Muku, but banana planters believe in his favor. The word *muku* names a measure about a yard and a hali in length obtained by placing the tips of the fingers of the left hand on the chest, stretching the right arm as far as possible from the side, and taking the distance between the left elbow and the tips of the fingers of the right hand. The idea is that a tree planted on the night of Muku will bear a bunch of bananas corresponding in size to the *muku* measure.

Old Hawaiians of Moanalua wait until the full of the moon (called *mahealani*), then, after the hole is dug, strip the clothing from a small boy, hold him suspended over the hole with his back to the moon and slip the plant into the hole. This method insures a large bunch of fruit within the year.

The ordinary method is, after first making the hole, to grasp the young plant firmly, throw it over the shoulder, grunt and groan and stagger a little backward in dropping it into place, at the same time exclaiming, "*Auwe! ka nui o keia maia, e!*" ("My! what a big bunch of bananas!").¹⁹

Mr. Joseph Emerson furnishes the following directions for planting banana shoots given to him in Hawaiian by J. Kaelemakule of Kailua, Hawaii, on November 19, 1903:

E kanu koke aku i na pohuli, oia ke mea e waliwali ai ka maia. O ka waiho loihi i na pohuli mamua o ke kanu ana, he mea ia e uaua (loliloli) ai ka maia.

Ke ano o ka kanu ana i maa i na kanaka Hawaii:—

E ai a maona mamua o ke kanu ana. Aia a kupo ka la i ka lolo (aina awakea paha), alaila kanu. E umi i ka hanu i ka wa e hapai ae ai i ka pohuli e hookomo iloko o ka lua, me he mea kaumaha la. O ke kumu o keia, i nui ka ahui

¹⁹ In Fornander (op. cit., 6: 164) is quoted an incantation to be used at this time —"It will take two men to carry it with difficulty."

o ka maia). *Ma hope iho o ka uhi ana i ka lepo a pua ka pohuli e ku iho ka mea e kanu ana maluna pono o ka lua maia, e oihelēi ana na wāwae ma kela aoao a ma keia aoao oka lua, alaila e hoi mai ana ke aka a ku pono. Oia ke kumu e hua koke ai o ka maia, aole hoi e lolohi ka piʻi ana. A o ka oi loa aku no o ia ku ana iho maluna, e wēhe loa ne ka lolēwāwae.*

Piant the shoots at once (after cutting). This makes the fruit luscious. Leaving them a long time before planting makes the fruit tough and unsound.

Customary mode of planting practised by the Hawaiians:—

Eat a hearty meal before planting. Wait until the sun is overhead, at noon, then plant. Hold the breath while taking up the shoot to place it in the hole, as if it were heavy (the reason for this is that the bunch may be large). After filling the earth about the shoot, the planter must stand over the hole with his legs straddling one on one side and the other on the other side of the hole, then stand upright over the shadow. Thus will the tree bear the sooner and not delay its growth. Best of all, while thus standing over the tree, take off entirely the trousers.

TRAVELLING

The traveller, no matter what the time of day, is welcomed hospitably with the call, "*E-o! mai! mai a ai!*", "Ho! come! come and eat!" On Kauai, if one refused the first call one got no second, for some one would run ahead to the next house to warn against inviting the traveller in and so on to the second until he might go on all day half starved. He was expected to eat a little at each house—a bit of sweet potato at one place, a shrimp at another, a guava or orange at a third; in this way no one host would be incommoded.

The old-fashioned Hawaiian was careful not to give a direct answer to the question where he was going, lest the spirits overhear and bring him bad luck. He might say politely, "*E hele ana au i kuu wahi e hele ai*" ("I'm going where I am going"), or he might frame a riddling answer. "*E hele ana i ka ohi-kihiki*" ("Going to dig with a sharp stick"), one answers on Hawaii.

To the question whether one possesses a certain article, a negative answer is given by turning the palm (one or both) over quickly. An affirmative is expressed by coupling the particle "*no*" (truly, indeed) to the name of the thing inquired for. A story used to be current on Maui of two foreigners who nearly starved to death while travelling about the island because they were unfamiliar with the affirmative "*no*" in Hawaiian.

Certain signs are concerned with the making of a journey.

If a hat unexpectedly falls off a peg, the owner will go somewhere. If it blows off the head while on a journey, the mission will be unsuccessful. It is considered unlucky to meet a person with the thumb thrust between the index and middle finger or one who draws down the lower eye-lid; an enemy will often do this to injure another. To meet a naked adult is bad luck, and should one stumble over a stone it is hopeless to go on. To meet a single blind man on the road, a lame man, a bow-legged or a hunchback is unlucky; but a combination of any two of these is a sign of good luck. In Kau district it is considered lucky to meet a cross-eyed man, but this is exceptional; ordinarily it is considered unlucky. Hawaiians never cross their hands behind their back while walking or talking to others; it is interpreted as a wish that burdens may be carried. Hiding the hand in the sleeve (called *muumuu ka lima*, or "crippling the hand") also is regarded as a sign that a near relative will become a cripple.

Animal signs which presage the coming of visitors do not differ much from those current in this country. In old days, if a number of cocks crowed at night a large number of guests were expected to visit the village. Such night-crowing is called "*ulu-moku*." A cock crowing before the door is the sign of a stranger's visit. If insects buzz about the nose, if a dog scampers about the yard in glee, if a plover (*kolea*) screams and flies about the yard, if a spider drops from its web to the floor, one may expect a visitor. If the spider turns and goes back again to the ceiling, the visitor is coming to gossip. If there are knots in its web, he will bring a present. If a spider drops to the floor at night, kill it or one will hear of a friend's death. If a lizard drops in front of a person, he will have a present; if it falls upon a woman, she will have a lover. If a large night moth, a butterfly or a dragon-fly comes into the house, the family expect a long visit from a relative or friend. Throbbing of the knees has a similar meaning. An itching nose means a kiss; a throbbing right hand, a gift to be received; a throbbing left, a gift to be given; a twitching mouth a scolding to be given. If the left foot throbs, one will go on a visit; if the right, one will have a visitor.¹⁹

¹⁹ See Fornander, 6: 132-134.

Clouds are in the first place weather signs²⁰ and in the second place indications of the movements of chiefs.²¹ This lore of the clouds is known to certain soothsayers called *Poe-kilo-ouli*, diviners from clouds. The sign clouds are those which lie low along the horizon, called *ao ouli*.²² When they follow the rim of the ocean they are known as *ao ku*; when they lie on the mountain-tops they are called *naulu*. The diviners distinguish spirits of the dead in the clouds and make connections between them and events to come. Before starting on a journey the head of the house will sit directly in front of his door and, after a muttered prayer to his god or to his ancestral guardian (*aumakua*), watch the shape the clouds take. If he lives near the shore he will watch the *ao ku*; if he lives in the uplands he will observe the *naulu*. If the clouds take the form of two men fighting, the journey will be futile; on the other hand, should he discern the animal shape of his *aumakua* he would be prospered. Shapes such as knives, spears, coffins, or a leering face are unlucky; a house means that the traveller will be kindly received; a calabash, that he will be given food; flowers or fruit, a woman, or a beckoning hand, are looked upon as signs of good omen.

Rainbows are looked upon as signs of the approach of chiefs and their interpretation is handed down from generation to generation in Hawaii. The following signs regarding rainbows are given by the old lady from Kona district on the island of Hawaii who is the last *kahu* (guardian) of the bones of Ke-alii-o-ke-lani, high chiefess of Olaa. If a rainbow has one foot at the door of a house and another over a near-by hill, a visiting chief will come from the direction of the hill. If one end rests on the ocean, a chief from over seas will appear within five days. If both feet rest on the ocean, a chief is traveling over the sea. The rank of the visiting chief may also be gathered from observing the rainbow. A bow whose feet do not touch the earth belongs to a divine chief (*alii akua*) descended from the gods. It is called

²⁰ See Malo, 32, 33; Fornander, 6: 84-86.

²¹ Described in Fornander, 6: 82-86.

²² Called *ouli* in Fornander (6: 52), where they are listed among "those things in the heavens which were worshiped."

onohi ("eye-ball") because it is believed that the gods from whom the chief claims descent give him this sign of their watchful care. Rainbows whose feet touch the earth are a sign of the *alii aimoku*, the "chiefs of the land," who do not claim descent from chiefs migrating from the South Seas. These chiefs are called *pu-oa*. The predominating color in the rainbow is also important in determining the family of the chief to whom the sign belongs. If the dominant color is red, he claims the favor of Pe-le. The pure white rainbow belongs to Ka-moho-alii, king of the sharks and brother of Pe-le. Other signs also occur. A broken rainbow is called *kahili*. If it has only one leg and looks as if its top were broken, it is a sign of the chief's death. The low-lying rainbow, the *ua-koko*, that rises after the sun is set is a sign of trouble and disease.

THE WEATHER

Propitious weather for any undertaking is in the hands of the gods.²³ Rain at night after a supplication by day is a propitious sign assuring the petitioner of a gracious answer to his prayer. On the other hand the gods show their anger by sending bad weather during the day upon anyone who breaks their taboos.

Mrs. Annie Aiona's mother taught her children, when they went to the mountain after ferns and fruit, to repeat before plucking a red *lehua* blossom, "*E, Pe-le, e! mai kahi lehua!*" ("Oh, Pele, hearken! give a *lehua*-blossom.") because all things red belong to the volcano goddess. Country girls used always to observe this point of etiquette when they went on a tramp, else rain or mist would fall on the company. Mrs. Pukui was taught never to pluck flowers or berries on the way up the mountain, but to pluck them on the way down and to leave a bit at some legendary spot as a good-will offering.

Particular caution is to be observed during a thunder-storm. When a clap of thunder is heard, all open dishes such as calabashes, bowls, baskets, flower-pots and cans should be removed from the

²³ Diviners read the signs in relation to the prayer offered. See Fornander, 6: 98-100. If rain falls when the *pala* fern is being plucked on the mountain for the sacrifice at the breaking of the *opelu* fish taboo, it is considered a lucky sign. At the birth of a child of rank a storm is likely to sweep over the island.

front of the house to the back and turned upside down. The reason given for this precaution is lest Kane-hekili (Kane-of-the-thunder) should be angry to see them lying empty of offerings. Persons who are lying down should turn on their sides or face lest the god give them a slap in the pit of the stomach. No one should whisper; all should speak in loud tones lest the god suspect them of speaking ill of him; nor should one exclaim at the flashes of lightning. If a particularly loud clap of thunder is heard, some one is suspected of breaking the taboo.

An old woman from Puna district says that lightning is feminine, thunder masculine. "*Ke alii wahine!*" ("The queen!") she said of a slight thunder-shower. A little boy in Puna called lightning "God's light," and Hawaiians believe that spirits are in the whirlwind.

Certain signs presage rain or wind. When a *koa*e (bosun bird) flies upland, a storm is coming. The *iwa* (the black frigate-bird) brings wind. If a *naia* (killer-whale) swims against the wind the weather will be clear; if with the wind, a storm is brewing. A whale leaping and blowing presages a storm. As soon as such a storm clears there will be found near shore thousands of young fish called *ohua-manini*. A ring around the moon is called *lua kalai lani* and denotes rain. Rats scampering about the house are called *ua lani pili* and also signify storm.

Particular legendary spots are especially associated with the activities of rain deities. Such a place is Ku-mauna in the foothills back of Hilea in Kau district. I have myself twice visited this place accompanied by its native keeper or his family and can testify to the awe with which it was surrounded at that time, in the winter of 1913.²⁴ The old keeper reminded us that we must on no account offend the rain deity by any "fooling." At the entrance to the valley he made us dismount from our horses and went through a kind of baptismal ceremony for the "foreigner" (*haole*) from a little pool of water caught in the rock, for the once well watered valley is now quite dry. When we reached the lump of

²⁴ Fornander (Polynesian Race, 2: 243) speaks of the blot left by Kaeokulani upon the minds of Hawaiians because of his desecration of sacred places during his wars with Kamehameha.

lava rock on the floor of the valley which is supposed to represent the transformed body of the god, he clasped it very lovingly while relating in Hawaiian the story of its transformation. On the return ride he trilled an old *oli* (chant) which he abruptly ended when he caught us listening, for old Hawaiians are fearful of revealing to strangers the secrets of the gods. They call it *Hoo-maunau wa i ke inoa o ke akua* ("Taking the name of the god in vain") and believe it leads to mischief. Though completely uninhabited at this time, the valley had formerly seen the habitation of a chief, a fact attested by the hollows scooped into a flat rock for the playing of the Hawaiian game of checkers. Still visible across the valley is the trail used by the king's runners who took messages from one side of the island to the other.

The story of Ku-mauna is taken directly from the account written down for me in 1913 by Mr. Joseph Emerson from the version given to him by Keoni Kupa, as the Hawaiians call the man who was formerly in charge of the Hilea sugar plantation. This John Searle had the story from Kaiwinui, the guardian of the valley. I myself saw the mass of rocks said to have been cast by the wrathful god into the yard of the profane manager of the plantation; and my guide showed me the particular plant mentioned in Mr. Emerson's story as substitute for the *opelu* fish,—because of the peculiar watered marking on its leaf like that on the fish's back. The story told me at the time varied a trifle from Mr. Emerson's: it was the first-fruits of his banana crop that the old god refused to Pe-le, and the time between the insult done by Mr. Searle to Ku-mauna's elbow (the fire incident had fallen out) was shortened to a single day.

THE LEGEND OF KU-MAUNA

Ku-of-the-mountain was a tall foreigner (*haole*) with a long beard who came to these islands from Kahiki. In his home at Kahiki he had been used to a liberal diet of bananas and before establishing himself in his new home he made diligent search for a place where bananas grew in abundance. Such a place he at length found in the district of Kau, Hawaii, in a very marshy inland section of Hilea south of and near the base of the lofty peak called Ka-iho-lena ("The-yellow-core," name of a banana with pink flesh growing wild in Hawaii). In this rainy spot the rich *iholena* banana grew in great abundance. Here Ku-mauna built his hut and made his home. In addition to the bananas he raised enough taro for his own use; but the place was so

wet that he was in the habit of carrying his taro-roots to the seashore to cook and pound into poi.

One day as Ku-mauna was opening his oven and taking out his hot taro, a woman whom he did not recognize stood before him and demanded some of the taro for herself.—“Why should I give any of my *taro* to you?” he said. “Would you refuse taro to Pe-le if she demanded it?” replied the woman. “Why should I give it to Pe-le since she is able to get it for herself?” said he. Upon this the woman with a look of fury in her eyes left him and he recognized that she was indeed Pe-le. On returning to his inland home, he found himself all doubled up by the cold with his hands pressed against his face. While he was in this posture, Pe-le suddenly came upon him in the form of a burning stream of *pa-hoe-hoe* lava (lava of the smooth, unbroken kind) and turned him into a solid rock; then she stopped, so that he now appears as the terminal point of the flow.

Ku-mauna to-day often takes the form of a dog and imitates voices so as to cause people to be led astray in the woods. For this reason people visit his haunts in groups of two or more, never alone.

Ku-mauna does not receive from the natives the worship usually given to a god. When, however, they want rain, they are in the habit of taking an *opelu* plant and smiting with it the rock which bears his name. This is supposed to bring rain.

About the year 1896, Mr. John C. Searle, then in charge of the Hilea plantation, went with a party of natives to shoot wild cattle, but they were unsuccessful in securing any. On their return home they passed the Ku-mauna boulder. Stopping for a moment, Mr. Searle jestingly said, “Here is the cause of our not getting anything!” So saying, he pointed his rifle and fired a charge straight at Ku-mauna. The natives who were with him were horrified at this defiant act and fled into the woods,—he saw nothing more of them until he got home. Some time later, after a period of prolonged drought, he broke off a piece from the same boulder and carried it home with him. Then, taking a Hawaiian named Kainoa-kupuna with him into the kitchen, he threw the piece into the fire saying as he did so, “There, Ku-mauna, I am throwing you into the fire where it is hot; there is nothing that will cool you but water. If you want to keep yourself cool you will have to send water.” Two or three weeks after this, the greatest flood ever known (in these parts) visited Hilea and Kaalaiki. A tremendous freshet poured down from the mountain bringing with it a great quantity of stones and boulders with which the beautiful garden (in the rear) of Mr. Searle’s house was completely covered. The natives believe that this was due to the insult offered to Ku-mauna.

NOTES ON TÊTE DE BOULE ETHNOLOGY

By D. S. DAVIDSON

THE Tête de Boule Indians, who call themselves *Tcekamèk'-iriniwak*¹ or Whitefish people, inhabit that region of western Quebec Province which is bounded by the Trenché river on the east and approximately by the Megiskani river on the west, a distance of about 160 miles. To the north, in general, it may be said that their country extends as far as the height of land separating the St. Lawrence basin from the James Bay and Hudson Bay watershed. The southern boundary however which is undergoing constant modification due to the northern invasion of white trappers, may be but temporarily placed at about 150 miles south of the northern limit.

ETHNOLOGICAL POSITION

The Tête de Boule occupy an interesting ethnographical location. On the east they are contiguous to the Montagnais of the Lake St. John band (*Piakwagami iriniwak*, people of the lake with a shallow bottom); on the northeast they meet the Mistassini Naskapi band of Lake Mistassini (*Mistassini iriniwak*, Big Rock people); to the north they come in contact with the Waswanipi Cree (*Waswanipi iriniwak*, given as "People of the place where they spear fish at night by the light of a birchbark torch"); and to the west and southwest they are neighbors to the Algonquins (*Kitigantcibi iriniwak*,² farm river people).

¹ Dr. Speck has recorded various terms for the Tête de Boule which may be cognates of this word. The Montagnais of Lake St. John have given him the term *Sagami* in reference to them. The informant suggested "long river" as a meaning. Another term he has recorded for them is *Ogicà'kamiu*, secured from a Tête de Boule who resided at Lake St. John. This term and its Montagnais cognate *Otcàkami ilnùts* may be translated as "People on the other watershed." Still another term the Montagnais apply to the Tête de Boule is *matacè wilnùts*, "Lookout people." Undoubtedly this is used in reference to the Tête de Boule who trade at Weymontachingue, for the latter themselves gave me the meaning of "lookout" for their expression *wemulàci*, from which the name of the post is said to be derived.

² This term is a cognate of *Tégázi ·bi ·win ·in ·iwag*, the name the River Desert band call themselves. See F. G. Speck, *River Desert Indians of Quebec*, Indian Notes, Museum of the American Indian, 4: 240, 1927.

It is therefore important to note that the Tête de Boule inhabit the strategic geographical location intermediate between the two main subculture divisions of northeastern North America, namely the Montagnais-Naskapi area of the Labrador peninsula and the Algonquin-Ojibwa area of the Great Lakes region.

It is in this respect that the Tête de Boule may be of far more significance to the ethnologist than is at first apparent. As an individual group they are perhaps of no greater importance than any other northern band, and in many respects are far surpassed in wealth of aboriginal institutions by a majority of their contemporaries. However, from the viewpoint of ethnology, in the strict sense of the word, the ethnographical location of these people claims for them a position of primary significance.

American ethnologists in recent years have devoted much attention to the interesting problem of culture diffusion, and in many instances have succeeded in tracing selected culture traits and complexes to their possible points of origin. In this respect however northeastern North America has been so inadequately known in the past that similar studies for this region have been severely handicapped. The characteristics of the Algonquin-Ojibwa group have been fairly well determined for some time, but until recently very little detailed information has been available about the Montagnais-Naskapi people of Labrador. The quantity of information concerning the latter group however has now become sufficiently great to allow Dr. Speck, who has been the principal investigator in this field, to make a preliminary ethnological classification of this sub-area.³ With this classification as a basis it is now possible to recognize certain characteristic differences between the Montagnais-Naskapi and the Algonquin-Ojibwa sub-culture areas.

The question now arises therefore with which of these sub-areas the geographically intermediate Tête de Boule are more closely affiliated. A consideration of their material culture leaves no doubt in my mind of their cultural connection with the Algonquin-Ojibwa group to the west. Their use of cradle-boards,

³ F. G. Speck, *Culture Problems of Northeastern North America*, Proceedings of the American Philosophical Society, 65: No. 4, 1926.

square-headed snowshoes, and bark wigwams; their method of construction of canoes with sharp up-turned ends, with long strips from end to end, and with an absence of a cuff or diaper, all indicate western, and in the case of the canoes, southern or Wabanaki influence. The double-headed drum is another object of western derivation, although this trait has crossed the Trenche river, for it is also found among the Lake St. John band of Montagnais. The Tête de Boule also manufacture a greater variety of types of moccasins and in this respect, western influence may again be recognized. It is indeed interesting and important to note therefore that, with the exception just noted, the Trenche river constitutes an almost exact eastern boundary of these western influences. Western culture traits which appear so strong among the Tête de Boule seem to have had but little, if any, influence to the east of the Trenche river.

On the other hand, the Trenche also represents the western boundary of the Montagnais-Naskapi sub-culture group. The western limit of the distribution of the typical toque of the women, the method of wearing hair bobs over the ears, and the use of the nimaban⁴ as a hunting charm is marked by the Trenche. These traits, with others, are absent among the Tête de Boule.

The Trenche river, to emphasize this point again, is also in certain respects the dividing line in folklore.⁵ The Tête de Boule tell many stories concerning Wisakedjak indicating western influence, but the Lake St. John band of Montagnais have little more than heard of him. On the other hand, the Montagnais-Naskapi tales about Atikwabeo, or Caribou-man, seem to be unknown among the Tête de Boule.

From a linguistic point of view, the Trenche also constitutes the dividing line between these two great sub-culture areas and, in this respect we again find the Tête de Boule affiliated with the Algonquin-Ojibwa, for like the latter they preserve the palatal stop before the light vowels, in contrast to the Montagnais-

⁴ F. G. Speck and G. G. Heye, *Hunting Charms of the Montagnais and the Mistassini*, Indian Notes and Monographs, Heye Foundation, 1921.

⁵ D. S. Davidson, *Some Tête de Boule Tales*, *Journal of American Folklore* (in press).

Naskapi who, as is well known, change the stop to an affricative in the same position.

A summary of the foregoing information, on the basis of cultural and linguistic evidence therefore offers abundant proof, at least to my way of thinking, for considering the Tête de Boule as the most eastern exponents of the Algonquin-Ojibwa type of culture. The consequent establishment of the Trenche river as the line of culture cleavage between that culture group and that of the Montagnais-Naskapi peoples of the Labradorean area would seem to be permissible. It appears necessary therefore to reverse the opinion of Chamberlain⁶ who, without the knowledge of our recently acquired data, considered the Tête de Boule as "apparently closely affiliated with the Montagnais."

PHYSICAL MEASUREMENTS

The reason why these people have been given the name "Tête de Boule" is quite apparent when their cephalous characteristics are taken into consideration. As the term implies, these people are characterized by a pronounced brachycephaly.

The following indices are computed from measurements taken from thirty adult Tête de Boule and seven boys. Although they do not represent a sufficient number of individuals to permit definite conclusions, they nevertheless present some interesting manifestations.

<i>Cephalic</i> <i>Index</i>				<i>Half-Breeds</i>	
	<i>Male</i>	<i>Male Children</i> 6-15	<i>Female</i>	<i>Male</i>	<i>Female</i>
77					1
78				2	
79				1	
80	2				
81	2	1	2	1	
82	1			1	
83	2				
84	6	2			
85	3	3	2		

⁶ Archaeological Report, 1905, Toronto, 1906, p. 123.

<i>Cephalic Index</i>				<i>Half-Breeds</i>	
	<i>Male</i>	<i>Male Children 6-15</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
86			1		
87			1		
88		1	1		
89					
90			1		

The average cephalic index for sixteen males is thus between 83 and 84, that for seven male children between 84 and 85, and that of eight females between 85 and 86. The variation for males ranges between 80 and 85, that for the children from 81 to 88, while that for females extends from 81 to 90. The half-breeds however in both sexes show much lower indices than those of a purer ethnic extraction. The cephalic indices of five male half-breeds range between 78 and 82, with a mean index of 80, while the index of a single female half-breed is 77. If future measurements on a sufficient number of individuals should establish a true average for the Tête de Boule within the limits recorded above, that is, between 83 and 86, the intimation made by Boas twenty years ago, that a short-headed people might still survive to the east of the eastern Ojibwa, would be verified.⁷

In spite of the obvious importance and accessibility of the Tête de Boule, they have received almost no attention from an ethnological viewpoint.

The information herein presented was secured in the winter, spring and summer of 1925, when the writer visited the three sub-bands mentioned below, for the purpose of inquiring into their land tenure system. Several weeks in all were spent at the various meeting-places of the Indians.

Of the past history of these people practically nothing, as far as I am aware, has been recorded. Early explorers in general have mentioned them only by name. Ethnologists in the past have given them almost no consideration, with the consequent result that, due to the influences of Christianity and civilization, a great amount of their aboriginal culture has been irretrievably lost.

⁷ F. Boas, *Archaeological Report*, 1905, Toronto, 1906, p. 88.

PRESENT CONDITION

The younger generation in particular is rapidly adopting the principles of civilization. When it is realized that each family lives by itself in the heart of the woods, on its own hunting reserve for approximately nine months of the year, with practically no opportunities for social contacts, the progress these people have made is indeed remarkable. This advance has been most profound in material culture, and as a result such articles as canvas-canoes, victrolas, hand-power sewing-machines, manufactured clothing, cooking-utensils and other such objects of European industry, are now regarded as almost indispensable articles by every family.

In diet however there has been but little change as a result of the influence of the white man. It is true that, when quartered during the summer near the post of the traders, the natives will take advantage of their opportunity to satisfy their epicurean wants by the purchase of candies, canned fruits, flour and other staple foods, but for the remainder of the year these luxuries are necessarily dispensed with, because of the impossibility of transporting a sufficient supply for the winter to their distant family hunting lands. A family, I have been told, will often depart from the post in September with but one or two bags of flour to last them in many cases until the following spring. There is practically no demand for vegetables and this, we may feel sure, is due for the most part to the fact that vegetables were never known to these northern peoples, who in their aboriginal state neither practised farming nor seem to have been acquainted with its products. The people were, and still are, strictly hunters, each family wandering in a nomadic fashion over its own inherited district. As a result of this mode of living far from the trader's post (their base of supplies for most things other than game), their diet in the bush is almost exclusively a meat one. The moose, beaver, and rabbit furnish the principal food supply.

In recent years, wooden houses have been constructed by many of the natives on the so-called reserves near the trading-posts. These houses range in quality from squalid huts to pretentious, well-kept cottages. An example of how objects of foreign

material culture may be adopted by a people before the true significance of use becomes understood is strikingly demonstrated in this case. For though many families own good dwellings, in many instances they never really occupy them during the few months spent around the post, but often pitch their tents alongside the buildings and live under the canvas. Firewood is stored to dry in the front room of the house and is carried out to the camp fire as it is needed. The situation as described above is especially typical of the Weymontachingue group and to a lesser degree of those at Manouan. At Obidjuan however these indications of a cultural lag can be found in very few instances. In nearly all respects, the Obidjuan Indians seem to be the most progressive of all the Tête de Boule, in contrast to those at Weymontachingue who appear to be the least so.

The Provincial Government of Quebec has recently established schools at Obidjuan and Weymontachingue and is considering the extension of this service in the near future to Manouan. Classes are conducted from June 1 to October 1 and instruction is given in the reading and writing of the French language. It is indeed surprising to note the eagerness with which these untutored people seize the opportunity to learn the rudiments of education. The children, as a group, seem to be enthusiastic in their classroom work and many of them show considerable ability in assimilating the French language. The parents, too, as a rule, show considerable interest in the schoolwork of their children and when able, do all in their power to aid them in their studies. Many of the adults have acquired in some mysterious manner a slight knowledge of reading and writing.

With these civilizing influences therefore it is not surprising to find a decadence of aboriginal institutions. Each generation is accepting an increasing amount of European culture, both materially and mentally, and with this increasing influence there results, as might be expected, a proportionate decrease of their own native culture. Many of their old institutions have been discontinued, either in whole or in part, and in some cases they appear to have been forgotten. Others however while regarded

as "old-fashioned" by many, are still remembered and considered as something inherently their own.

POLITICAL ORGANIZATION

In the past, succession to the position of chieftain has been strictly hereditary, excepting exigent occasions that made it impractical to follow the ordinary practice. This age-old custom of hereditary chieftainship however is beginning to lose favor at the present day, and the installation of a new leader is coming gradually to be made through more democratic institutions. Let us take, for example, the existing situation at the Weymont sub-band. The present chieftain is the fourth member of his paternal family who has held this office. The order has been as follows:

1. Nabowits.⁸ This chief is reputed to have received a medal from George III. It has been handed down to each succeeding chief.

⁸ The veracity of the dates implied to the reigns of Nabowits (1) and his son Petikwi (2) may be assumed. The present incumbent Charles Petikwi (4), who gives his age as 63, has only been in office for four years. Conceding his father to have been at least 20-25 years his elder, the age of the latter would have been between 83 and 88 today if he were alive. In 1862, therefore, his age would have been between 20 and 25 and for that reason it seems logical to believe that his father (2) was living and was chief at the time the Hudson's Bay Company medal was given. We can attempt, also, to affirm the receipt of the medal from George III by Nabowits (1). It must be remembered that, theoretically at least, the first-born generally succeeded his father. Taking into consideration the almost certainty of early marriages, twenty to twenty-five years does not seem an excessive age difference between father and son. This difference can at least be accepted as the very minimum. If Petikwi (2), the recipient of the Hudson's Bay Company medal, was from 20 to 25 years older than his son, his age would have been between 40 and 50 in 1862 and he would have been born sometime between the years 1812 and 1822. Nabowits (1), his father, if we still assume a minimum 20 to 25 year generation, would have been born between the years 1787 and 1802. If the former date may be accepted as being the nearest correct, it would have been possible, although, it must be admitted, improbable, for Nabowits to have assumed the chieftainship during or before 1810, the year when George III lost his mind and his son George IV became regent. We have overlooked the possibility however that the assumption of a 20 to 25 year generation may be too small or that there may have been an exception to our theoretical succession in that a younger son may have succeeded his father in some instance due to the death or incompetence of the oldest son. This would automatically increase the assumed age difference between father and son and might set the date of birth of Nabowits back several years. Although it is impossible to prove the veracity of these reports, it may be logically accepted that the native tradition of the incumbency of chieftain has some semblance of truth.

2. Petikwi, son of No. 1. This chief is reported to have received a medal from the Hudson Bay Company in 1862.
3. Petikwi, Louis, son of No. 2.
4. Petikwi, Charles, son of No. 3. and present chief.

This chronological order of a son succeeding his father may be taken as typical of the aboriginal system of succession in the position of chieftain.

Today however there is a new political philosophy developing. Charles Petikwi, the present chief, upon the death of his father in 1921 was *affirmed* as chief by popular acclaim. The fact that he succeeded his father loses its hereditary significance because of this referendum. The present chief was acceptable for succession because of his personal ability to fill the position and because of his speaking knowledge of French and several Algonkian dialects. I was particularly interested to inquire into the possibilities of incumbency in the event of his death. The older men, although still admitting that the rightful successor should be the older son of the chief, now 15 years of age, were in general quite dubious as to the youth's ability. Some frankly stated that they were opposed to him, and even though he shall have attained maturity upon the death of his father it is doubtful whether he will be able to secure sufficient support to enable him to hold the position. It thus seems that an internal political evolution is gradually taking place in the minds of the people, with the probable result that the next chief may be installed entirely by election and the control of the office by the Petikwi family may become relinquished.

In the Manouan sub-band, we find a similar breaking down of the ancient customs. The father of David Kaweasikitc was chief several years ago. Upon his death, his son David refused to accept the position, claiming that he did not feel himself qualified to hold it. He maintained that he did not have influence over the people, which he said was a requisite for a chief. Accordingly, the people chose Louis Neoashits who was originally from Waswanipi. Upon the death of Louis the group carried out the old custom, and incidentally the wishes of Louis, accepting as chief his son, St. Denis Neoashits. This man, the present chief, is not

held in very high esteem. He is criticised in particular for his lack of interest in the affairs of the people, and because he attaches but little importance to his position. In reality the present chief is James Moore, a half-breed who generally acts as spokesman for the group and exercises what little influence exists.

At Obidjuan, the group has in recent years installed the positions of two sub-chiefs. The present chief is Gabriel Awashish, a member of a very numerous and influential family. He inherited his position from his father. One sub-chief is Robert Chachia, the other is Paul Meigwesh. There seems to be no hereditary value placed on the office of sub-chief, as Paul Meigwesh was selected to fill the vacancy caused by the death of Louis Weésinaw. The natives gave no explanation for the creation of the positions of these two sub-chiefs, except the generalization that the chief needed some assistants. The Obidjuan sub-band is by far the largest in population, numbering 144 in all, and this fact may have had some influence on the question. However, it must be noticed that the establishment of these positions may be the subconscious result of a natural diffusion of the idea from the southwest.⁹

The typical political organization of native northeastern America has been designated as the band.¹⁰ There are about twenty such bands in the Labrador peninsula alone. In general, the term "band" applies to a group of independent families inhabiting a geographical unit, speaking the same language or dialect, sharing the same or similar customs, and regarding themselves as a unified political group. This definition implies a political unity, and it is in this respect that the Tête de Boule differ from the neighboring standard type of band. In this sense, in reference to the Tête de Boule, the term is a misnomer, for in reality there are three such organizations, three bands in one. Each of these is a political and social unit in itself and maintains no official relations with the other two. The three however

⁹ Vide, F. G. Speck, *Memoir* 70, G. S. 1915. The institution of having assistant chieftains is much more regular and permanent in the Ottawa valley and may be of Iroquoian derivation.

¹⁰ J. R. Swanton, *The Social Organization of American Tribes*, *American Anthropologist*, 7: No. 4, 1905. F. G. Speck, *The Social Structure of the Northern Algonkian*, *Publications of the American Sociological Society*, 12, 1917.

regard themselves jointly as one people, that is, they are all *Tcekamèk' iriniwak*; the language is the same for all three, and there is practically no difference in culture. For this reason it seems legitimate to consider the three divisions as jointly constituting a band with a tripartite division into what we may call sub-bands. The sub-bands are thus political units which together form a linguistic and ethnic but non-political band.

Each of these three sub-bands has its individual rendezvous or headquarters, and it is from these places that the sub-bands have derived their names. We may thus speak of the Weymontachingue or Weymont sub-band, the Manouan sub-band and the Obidjuan sub-band, each one constituting in all respects except as noted above, the characteristics of individual bands.

According to native tradition, the Tête de Boule have been divided into sub-bands for some time. It must not be implied from this however that this subdivision has always been in three parts, nor that the geographical boundaries of the sub-bands have always been the same as they are today. Historical evidence shows that until comparatively late in the nineteenth century there existed a fourth sub-band which had an organization similar to the others. The rendezvous of this group was located at Kokokash¹¹ and the natives were known as Kokokash Tête de Boule. A Hudson Bay Company post was established here for these people but has now been abandoned for several years. The present name of the place is Du Plessis.

It is important to note that the Kokokash sub-band, situated as they were on that part of the St. Maurice river where they would come into first contact with the whites, has been the first to lose its identity, to disintegrate. With the gradual invasion of the Europeans into the St. Maurice country, came a corresponding decrease in opportunity to earn a living in aboriginal ways. The Indians attempted to meet these new conditions by concentrating their population in those districts where the least white influence was being felt. Their children, when they married,

¹¹ *Kokokac*, owl hiding from *koko*, owl, and *kaco*, to hide one's self. It was so named from the tradition that an Iroquois once hid in the top of a tree there and called like an owl.

took up their abode in the land of the family whose holding was the furthest removed from the area under white influence, irrespective of the parental family to which the land belonged. As the old folks died, the family hunting lands which were located in the invaded area were abandoned, one by one, to make way for the invading whites. Sagacious parents influenced their children to choose marriages with individuals of other groups in order that hunting lands might be insured to them. With such internal changes taking place over the course of many years, the numbers of the Kokokash sub-band gradually diminished until it was no longer possible to maintain the integrity of the group as such. From the point of view of the Hudson's Bay Company, trading became so poor that it was no longer profitable to maintain a company store. The abandonment of the post marked the utter collapse of the group as an independent sub-band, for the few families, which still remained in the neighborhood, commenced to trade at the next nearest post, some going up the river to Weymontachingue and some crossing the height of land to go to Pointe Bleu, the trading post of the Lake St. John band. It is with the latter people however that most of the Kokokash Indians have come to be identified in the present day. Not only are there many individuals at Lake St. John who are able to trace their lineage to Kokokash, but there are also several old men and women who remember the days before the post was deserted.

The disintegration of the Kokokash sub-band has influenced the Weymontachingue sub-band and the Lake St. John band in two ways. First, their numbers have been increased, and secondly, their boundaries have consequently been extended to include the territories of the new members. This instance constitutes a good example of how the boundaries of a band or sub-band may change as the result of outside influences. In respect to the people, however, their manner of living continued the same as usual, except for the change required in going to their new rendezvous, their new trading post.

At the present time a similar change is taking place in the southern territories of the Manouan sub-band, which are located on the border of white contact. White trappers are yearly extend-

ing their trapping and hunting operations further and further into Indian country. Many years therefore may not elapse before the history of the Manouan people may duplicate in part, at least, that of the Kokokash Indians.

The political organization of the Tête de Boule is almost anarchistic. There is no formal government in the sense of an organized regulatory body. Considering the band as a whole, no governing individual or group exists, for, as I have pointed out, the band as here described in relation to the Tête de Boule is not a political but an ethnic group composed of three sub-bands, each of which maintains no official relations with the other two. The sub-bands themselves however do have political leaders—chiefs—and the latter exercise what little political authority exists in their respective band subdivisions; yet, and this point must be emphasized, although each is in all respects a chief in his own sub-band, the chiefs, neither individually nor jointly, constitute officers of the band proper in any capacity whatsoever. Each sub-band represents a sovereign unit unto itself and it is only in relation to it that its chief is recognized as a political leader.

A chief of the modern Tête de Boule sub-band exercises but little control over his group. In the first place, there are no instrumental methods by which laws might be enforced, and secondly, there are no laws. The political basis of these people, like their social structure, rests entirely upon the institution of the family. The will of each individual is paramount and is dominated by the authority of no other. The father of the family is recognized as the leader of that group, but his authority is of a rather indefinite nature. There seems to be no other body, either social or political, which has the power to enforce the obedience of the individual, either physically or mentally. All members of the group, like those of other northern bands, are allowed practically free reign in action and thought. Although they do, as individuals and as a group, conform to certain behavior norms, this manifestation is rather the result of habit and volition than of regulative control or official enforcement. Of course taboos exist but their observance is subconscious on the part of each member. Certain actions are performed or avoided because, according to the public

mind, a well brought up individual should do so. There seems therefore to be but little need for a political official. As noted above, there are no formal inter-band, intra-band or inter-sub-band relations; wars have ceased, and therefore in general there is but little need for a leader under present conditions.

It seems reasonable to believe however that in the past a chief exercised much greater authority than is apparent today, and this point of view is upheld by native tradition. The many invasions of the Iroquois into this general region undoubtedly gave rise to a much greater prominence in leadership than exists at present. Today the people, theoretically at least, are secure under a European form of government, and this reason may have contributed toward the decadence of their aboriginal system.

From all indications it is probable that even in the old days the main functions of a chief were more social than political. It was his prerogative to take the lead in the ceremonies performed before the advent and influence of Christianity. Christianity however has released him from this social activity with the coming of the Christian priest, the Church now assuming social leadership and replacing native festivities, which it has prohibited, with Christian ceremonies. In this social and religious field therefore the power of the chief has steadily diminished, so that his influence represents but a thin shell of its former significance.

HUNTING TERRITORIES

The system of land tenure of the Tête de Boule is typical of a band in the northeast.¹² The entire territory of each sub-band is divided into family districts, which are owned and occupied by individual families.

Each family district is bounded by natural landmarks such as rivers, lakes, or ridges of land, and the boundaries are well known by the natives.¹³ Not only the owner, as might be expected,

¹² Vide, F. G. Speck, *The Social Organization of the Northeastern Algonkian*.

¹³ The family hunting territories described below were outlined on the map in almost every instance either by the actual owners themselves or by their relatives. Owing to the inadequate maps of this unsurveyed region, it is probable that many inaccuracies exist. In many cases, the Indians in marking out their lands, were forced to guess at their estate boundaries because the maps did not indicate all the natural features which are so important to them.

but also the other members of the sub-band, are acquainted at least in a general way with the territories of their neighbors. Trespassing by strangers at the present day although resented is not regarded so seriously as in aboriginal times. Then it was punishable by death or by disease and misfortune brought on by a conjuror. The influence of civilization has contributed much toward the breaking down of this old, economically and politically just aboriginal method of protection, but the modern European form of control which has usurped the aboriginal method, has not extended its influence far enough to protect these people from the destructive invasions of the white trapper and unscrupulous Indians.

Another institution that prevailed in aboriginal days in connection with the family hunting-territory system, but which has fallen into disuse as a result of European contact, is that of game farming. Until quite recently a large part, perhaps a fourth, of the family preserve was closed to hunting for a season to allow an increase in the animal population. A beaver colony for example was never reduced to less than two or three adults, which were left for breeding purposes. Today these conservation methods have been discarded in districts where white trappers operate. If the Indian spares the life of any sort of game, the animal is almost certain to be taken by the whites whose interest is purely seasonal and who may hunt and trap in a different locality the following year. The Indian therefore rather than lose the profits accruing from a bountiful catch, has been competitively forced to adopt the methods of his opponents.

The individual right to possession of the land is a custom of immemorial antiquity. Each hunter receives his strip of territory by inheritance from his father, who for his part had received it in a similar manner. The method by which large family tracts have been broken up and distributed to male children (in normal procedure) is evidenced in many instances by the possession of contiguous territories by brothers or cousins with a common family name. The Tête de Boule furnish several good examples of this process. For instance, the Petikwi family of the Weymontachingue sub-band, own and occupy territories 1, 2, 3, and 4

(see map). Charles Petikwi, the chief (number 1), is a brother of Alexandre (number 2) and Louison (number 4), while Testababi Petikwi (number 3) is his father's brother. In the Manouan sub-band territories 18, 19 and 20 are owned and occupied by Joseph Djubé, his son William and his brother George Djubé respectively. The territory marked x is claimed by the Djubé's to constitute part of their ancestral hunting land which, due to the invasion of the white trappers, has been abandoned.¹⁴

Perhaps the best example of the manner in which an ancestral territory may be subdivided in the course of several generations is demonstrated by the Awashish family of Obidjuan. This large family group which furnishes the chief, and which constitutes about one-third of the population of this sub-band, is concentrated, with one exception, in the contiguous area represented on the map by the territories 27 to 35 inclusive. The chief, Gabriel Awashish, inhabits territory number 27 while his two sons Malik and Basil occupy the contiguous territories 30 and 31 respectively. Toma Awashish, a cousin of the chief, lives in number 28 and his son, Jean Pierre, occupies the next strip (number 29). Another cousin of the chief, Louis Awashish, inhabits number 35. Territory 32 belongs to Pierre Awashish, the chief's uncle. Territories 33 and 34, respectively, are owned by Edward and Simon Awashish (the latter deceased). The exact relationship of these men to the chief, however, was not recorded.

The Chachia family is another large and prominent group of Obidjuan. Its land is centered along both sides of the height of land in territories 36 to 41 inclusive. Territory 36 is owned by François Chachia and a continuation of this strip across the height of land belongs to his brother Robert (39), one of the two sub-chiefs. Territory 37 is inhabited by John Chachia, the nephew of 36 (probably the son of 39). Number 38 is owned by Pierre Chachia, the son of 39. Joseph Chachia inhabits territory 41

¹⁴ It is probable that the territories listed for the Manouan sub-band are somewhat exaggerated in respect to their southern limit. The Wabanaki, who once lived to the south of the Tête de Boule, according to the information collected by Hallowell, included part of this district in their hunting lands. With the withdrawal of the Wabanaki from this general region, the Manouan people undoubtedly extended their hunting operations southward into the vacated area.

and his son, Toma, has the contiguous district to the south, number 40.

Still another example is furnished by the Weésinaws. This family occupies the enormous territory included in the districts 51, 52, and 53. Mathias (52) and Lesime (53) are brothers who inherited their land from their father, Louis, who was a sub-chief before his death. The latter also left part of his land to his brother Mathias.

There are many instances however where a family territory has been subdivided and distributed to a son or sons during the life-time of the father who still retained a part for himself. Several examples may be cited to illustrate this point. William Djube (19), son of 18, received his territory from his father some years ago, whereas his brother, Solomon, although married, still lives with the father and will inherit on the death of the latter the remaining part of the original territory. Chief Gabriel Awashish (27) has already given territories to his sons, Malik (30) and Basil (31), while another married son hunts with him at home. Toma Awashish (28) has appropriated a strip to his son, Jean Pierre (29), but Matthew and Moise, although married, both remain on their father's land. Other examples of instances where a father, during his lifetime, has given a son a district are shown by coupled territories 38 and 39, 40 and 41, and 48 and 49.

In other territories however the district is not divided until after the death of the father, although it is generally well known just what intentions the father had concerning territorial subdivision and these ideas are respected and carried out. Although actual division does not take place in most instances until after the father's death, the married son, accompanied by his family, often, if not generally, hunts alone, apart from his father and independently of the restricted part of the whole family area utilized by the latter. This in reality amounts to a territorial subdivision during the life of the father.

The Tête de Boule family territories, as a general rule, are patrilocal, that is, the wife comes to live on the property of her husband. This is as might be expected where the inheritance of real property follows the male line. There are however certain exceptions to this generalization which must be noted. When the

male line of the family becomes extinct and there is a daughter, it is customary for her husband when she marries to receive her father's property. This point is well illustrated by the situation in territory 34 where recently old Simon Awashish died leaving a daughter but no sons. For a while the girl lived with friends, but upon her marriage in the summer of 1925 to Micheal Nara of Lake St. John, the young couple returned to the family land which is now regarded as belonging to Nara.

Another example is furnished by territory 32. In this instance, the owner of the property, old Pierre Awashish, is still living. He has but one daughter, who will be his sole survivor. The daughter is married to Arthur Cleary, who at present hunts with Pierre, and who, upon the death of the latter, will inherit the property.

At Weymont a similar situation is in process of development. Old Testababi Petikwi (3) has no sons but has taken William Chilton, his daughter's husband and son of Richard Chilton (7) to aid him in hunting. Upon Testababi's death, territory 3 will descend to this son-in-law.

There are causes other than the extinction of the male line however which may cause the matrilocal determination of territories. In territory 13, for example, it will be noted that Dominik Moar, a son-in-law of St. Denis Neoashits, has taken up his abode on his wife's family's land in spite of the fact that St. Denis, who has four younger children, has also a married son who lives and hunts upon it. However, there might be less opportunity for Dominik if he stayed at home on the land of his father, James Moar (22) for Onisime Petikwi has lived there since his marriage to Moar's daughter—another example of matrilocal residence. Again in territory 16 another instance of matrilocality is developing. Cesare Moar, another son of 22, is married to the daughter of David Kawasikitch and is already living upon the latter's land. It is interesting to note in this marriage, if the statements concerning the family genealogy have been truthfully made, that we have an example of cross-cousin marriage, for Cesare's mother is reputed to be the sister of David Kawasikitch. Since the wedding was allowed, marriage between first cousins being frowned upon by the Church, there may be a discrepancy in the genealogical records.

Territory 22, the district of James Moar, presents an interesting example of how the family name of the owner of a territory may change with each generation. A generation ago, territory 22 belonged to the father of David Kaweasikitec, who was then chief. James Moar at that time came to Manouan and married the former's daughter. Upon the death of Kaweasikitec, district 22 was left to Moar, and district 16, the remainder of the old man's land, was bequeathed to his own son, David, the present owner. When James Moar dies, territory 22 in all probability will be subdivided and Onisime Petikwi will receive a share of it. In three successive generations, therefore, territory 22 will have changed hands three times, passing from the Kaweasikitec family to the Moar family, while in the next generation part of it, at least, will become identified with the Petikwi family. In every instance, it must be emphasized, the inheritance was not to the daughter but through her to the son-in-law. The history of this territory is also a striking example of how an originally large territory may become subdivided into smaller districts in the course of a few generations.

Considering the Tête de Boule as a unit therefore concrete evidence at the present day shows only about six instances of matrilocality or a tendency in that direction among the younger generation. Out of 56 territories, 50—very nearly 90 percent—are patrilocality or tend to be so in this or the coming generation. In the past however there must have been many exceptions similar to the few records above. The distribution of family names on the map shows many instances where the territories of individual males with the same family surname are located far apart. Here and there instances may be noted of an intrusive name in the middle of an otherwise solid block of territories belonging exclusively to individuals with a common family name. From the evidence it seems permissible to infer that these intrusions result from circumstances of matrilocality similar to those noted above.

The following chart contains a list of the Tête de Boule landowners. The numbers in the left margin refer to the numbered territories on the map. The census and information presented is of August 1925.

TÊTE DE BOULE FAMILY HUNTING TERRITORIES
Weymontachingue Sub-band

Hunter	Family Name of Wife	Adults M F	Chil- dren	Total	Remarks
1-Petikwi, Chas. Chief.	From Megiskan	1 1	5	7	Children include three orphan half-breeds. A block of land ten miles square is rented by the chief to the Watsigos Club for use as a game and hunting preserve. The chief has drawn a map, as this district has not yet been surveyed thoroughly, including on it all the principal lakes and streams. This map constitutes a contract of rental which shows what lands are rented to the Club. The chief receives a yearly rental, according to his own statement.
2-Petikwi, Alex- andre Brother of 1.	Nikwado Daughter of 7b	1 1	4	6	
3- a. Petikwi, Test- ababi Uncle of 1 b. Chilton, Wm. Son-in-law	Awashish Daughter of Testababi (3a)	1 1 1 1	 2	6	Testababi is lame and has difficulty in hunting. Since he has no sons but a daughter, her husband, Wm. Chilton, son of Richard Chilton (7a), has come to live with his father-in-law. He will inherit the territory on the death of Testababi.
4-Petikwi, Lou- ison Brother of 1	Daughter of Chilton (7a)	1 1		2	
5-Awashish, Chas.	Baruté	1 1	4	6	The Baruté family seems to be extinct in the male line.

Hunter	Family Name of Wife	Adults		Children	Total	Remarks
		M	F			
6-Awashish, Simon	Neoashits	1	1	4	6	Simon came from Obidjuan when a boy. He hunts over a territory unused by others. It is said to be very poor hunting land.
7-						
a. Chilton,	Cocootsi	1	1	4	12	Joe Nikwado and William Cocootsi are cousins.
Richard	Sister of 7c					
b. Nikwado, Joe	?	1	1	1		
c. Cocootsi,	La Loche	1	1	1		
William						
8-Boivan, Lesime	Daughter of Joe Baro of Lake St. John	1	1	7	9	Sometimes he trades at the Lake St. John Post.
9-La Loche, Daniel	Daughter of Pierre Awashish of Obidjuan (32a)	1	1	2	4	
10-Boivan, Joe Brother of 8	From Megiskan	1	1	6	8	The wife's father was called <i>Wisena</i> , castor box.
11-						
a. Cocoo, Louis	Nikwado	1	1	5	9	
b. Cocoo, Nasis-cook	Flamand	1	1			
	Daughter of 21					
		15	15	45	75	

Manouan Sub-band

12-						
a. Ottawa, Adonis	Unmarried	1			10	Nickname, <i>Madina</i> , denotes a hill where the individual is said to have been born.(?) Adonis is real owner of the land, left him by his father. His stepfather came from Waswanipi as a child.
b. Ottawa, Simon Stepfather	Moar, daughter of 22	1	1	7		

Hunter	Family Name of Wife	Adults		Children	Total	Remarks
		M	F			
13-						
a. Neoashits, Sini Chief	Djubé	1	1	4	10	Nickname. <i>Inibina</i> <i>tuc</i> = summer socks. <i>neocits</i> = a peninsula Sini, vernacular for St. Denis.
b. Moar, Dom- inik, a son-in-law son of 22	Daughter of 13a	1	1			
c. Neoashits, Ce- sare, a son	Moar, daughter of 22a	1	1			
14-						
a. Achakwan, St Pierre	Djubé	1	1	3	6	
b. Nikwado, Chas. Brother of 7b	?	1	?	?		
15-Neoashits, Tatil Uncle of 13a	Achakwan Daughter of 14a	1	1		2	
16-						
a. Kaweasikite, David	Petikwi, niece of 1	1	1	1		Wife's nickname, <i>Pus- teatic</i> , some kind of a diving bird. Uncle of 21a.
b. Moar, Cesare son-in-law son of 22a	Daughter of 16a	1	1	2		
17-Bushi, Ariché	From Obidjuan	1	1		2	
18-						
a. Djubé, Joseph	Petikwi, sister of 1	1	1	5	10	
b. Djubé, Solo- mon, a son	Flamand, daughter of 21a	1	1	1		
19-Djubé, Wm. son of 18a	Kwitshitch daughter of 23	1	1	5	7	
20-						
a. Djubé, Geo. Brother of 18a	?	1	1	?	6	
b. Djubé, Henri a son	Bushi, a daughter of 17.	1	1	1		

Hunter	Family Name of Wife	Adults		Children	Total	Remarks
		M	F			
(20—cont.) c. Petikwi, Joe	Unmarried	1				Petikwi's nickname is <i>Obaska</i> , given as "born at the narrows." bask: to burst, divide hence middle.
21— a. Flamand, Chas.	Djubé	1	1	2		Wife's nickname <i>cigoic</i> , unidentified bird, given as rainbird probably intended for wren. His mother's nickname is <i>Ominono kwe</i> , pretty woman.
b. Flamand, Jas. a son	Djubé	1	1	3	13	
c. Flamand, Thos., a son	Djubé	1	1	2		
22— a. Moar, James	Kaweasikite	1	1	5		Nickname, <i>wapik-idjimi</i> , White Jimmy. This man, a half-breed, came to Manouan region from the Hudson Bay country. He married the daughter of old Kaweasikite who was then chief. The old man left him part of his territory when he died. This strip is contiguous to that of the old man's son (16).
b. Petikwi, Onisime, a son-in-law	Daughter of 22a	1	1		9	
23—Kwitshitch, Michel	Bushi	1	1	?	2	
24—Kwitshitsh, Chas.	Name ?	1	1	4	6	
25—Neoashits, Batiste. Brother of 15.	Bushi	1	1	4	6	Nickname, <i>Kabawaci</i> , a small creek which flows parallel to a river which it joins.

Hunter	Family Name of wife	Adults		Children	Total	Remarks
		M	F			
26-St. Denis, Pierre	Name ?	1	1	?	2	Stepbrother of 15a.
		26	23	49	98	

Obidjuan Sub-band

27-						
a. Awashish, Gabriel Chief.	Demi, from Megiskan	1	1	2	6	
b. Awashish, ? a son	Chachia	1	1			
28-						
a. Awashish, Toma Cousin of 27a	Demi, sister of wife of 27a	1	1		11	
b. Awashish, Matthew a son	Bushi	1	1	3		
c. Awashish, Moise, a son	Daughter of Jean Batiste St. Pierre (55)	1	1	2		
29-Awashish, Jean Pierre, a son of 28a.	Daughter of Luke Simion of Lake St. John	1	1	4	6	
30-Awashish, Malik, son of 27a.	Boivan, from Lake St. John	1	1	6	8	
31-Awashish, Basil, son of 27a	Chachia	1	1	4	6	
32-						
a. Awashish, Pierre Uncle of 27a	Deceased	1			3	Arthur Cleary is from Lake St. John.
b. Cleary, Arthur Son-in-law	Daughter of 32a	1	1			

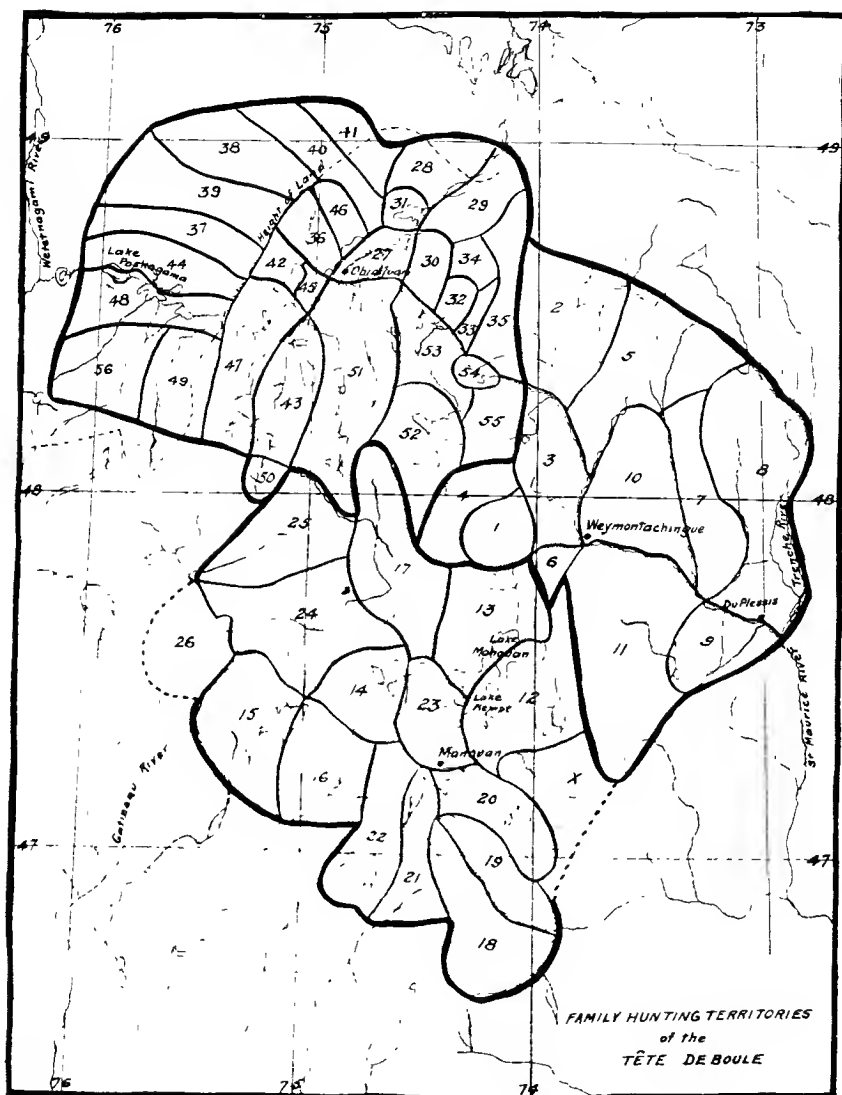
Hunter	Family Name of Wife	Adults		Children	Total	Remarks
		M	F			
33-Awashish, Edward	Bushi, a daughter of 17	1	1	3	5	Wife was a widow. Three children are from her first marriage.
34- a. Awashish, Simon (deceased) b. Nara, Michel	Deceased Daughter of 34a	 1	 1		2	Nara is from Lake St. John. This couple were married in the summer of 1925.
35-Awashish, Louis Cousin of 27a	From Lake St. John (deceased)	1		1	2	One son hunts with him.
36- a. Chachia, François b. Chachia, Elie	From Megiskan Iserhoff, daughter of 54	1 1	1 1	2	6	
37-Chachia, John Nephew of 36	Weésinaw	1	1	3	5	
38-Chachia, Pierre Son of 39a.	Daughter of Paul Megwish 49a	1	1	3	5	
39- a. Chachia, Robert Subchief Brother of 36a b. Chachia, Matthew A son	(Deceased) Awashish	1 1		4	7	
40-Chachia, Toma Son of 41a	Nikway	1	1	1	3	Child is from first wife

Hunter	Family Name of Wife	Adults		Children	Total	Remarks
		M	F			
41-						
a. Chachia, Joseph Father of 40	Mattawa	1	1	4	11	Wife is daughter of Bobby Dixon's brother.
b. Chachia, Joseph A son	From Waswanipi	1	1	3		
42-Awashish, Solomon Cousin of 40.	Daughter of 41a	1	1	2	4	This man's land has been almost entirely flooded out by the back- ing up of the waters caused by the Canadian Government dam at La Lute 85 miles away. He now hunts with vari- ous families
43-Chachita, James	Awashish	1	1		2	Sometimes he takes other hunters with him.
44-Mattawa, St. Pierre	From Bell river (Nottaway)	1	1		2	One daughter is married
45-Mattawa, Mathias Brothers of 44	Chachia	1	1		2	
46-Nikway, David	Djubé	1	1	3	5	
47-Nimes, Jean Batiste	Awashish	1	1	2	4	
48-Meigwesh, Etienne Son of 49	Mattawa, daughter of 45	1	1	1	3	
49-						
a. Meigwesh, Paul Subchief, father of 48	Neoashits	1	1	3	8	
b. Meigwesh, David	Iserhoff, daughter of 54	1	1	1		

Hunter	Family Name of Wife	Adults		Children	Total	Remarks
		M	F			
50-Mc Kenzie, Chas. (Deceased)	Boivan, from Lake St. Jean		1	?	1	This man was half white and half Eskimo. When R. R. was constructed he took that part of 43's land which was south of R. R. line.
51- a. Weésinaw, Mathias b. Weésinaw, Banawa	Awashish, sister of 43's wife Unmarried	1 1	1	2	5	Brother Louis (deceased) used to be sub-chief. He left part of his land to him.
52-Weésinaw, Mathias Nephew of 51 son of Louis	Neoashits (Manouan)	1	1	3	5	
53-Weésinaw, Lesime Son of Louis Brother of 52	Iserhoff, daughter of 54	1	1	3	5	
54-Iserhoff, John Halfbreed	Boivan, From Lake St. John	1	1	5	7	John Iserhoff came from James Bay country. Worked about Hudson Bay Company's post at Kikendatch. When post was withdrawn there he continued to hunt in neighborhood.
55-St. Pierre, Jean Batiste	Boivan, sister of wife of 54	1	1	3	5	
56- ? Deceased	?					This land belonged to a hunter (name unknown) from Obidjuan. His son died at the same time. Land is now used by whites and Indians.
		37	34	73	144	

	Adults		Chil- dren	Total
	M	F		
<i>Totals</i>				
Weymont sub-band	15	15	45	75
Manouan "	26	23	49	98
Obidjuan "	37	34	73	144
<i>Grand Total</i> for Tête de Boule	78	72	167	317

UNIVERSITY OF PENNSYLVANIA,
PHILADELPHIA, PA.



A PHARMACO-BACTERIOLOGIC STUDY OF TWO MALAYAN BLOW-GUN POISONED DARTS

By IVAN C. HALL

Note. Dr. Hall is Professor of Bacteriology and Public Health, at the University of Colorado Medical School, Denver Colorado. EDITORS.

DURING the early phase of our study of African poisoned arrows,¹ I appealed for information to Professor David P. Barrows, of the University of California, who had recently returned from Africa. But Professor Barrows' travels were entirely in the western Sudan along the southern border of the Sahara and the coast of Guinea and he had no contact with the Bushmen or other tribes employing poisoned arrows. He had however brought back with him some seventeen years ago from the Philippine islands, two Malayan poisoned darts, which were placed in the Museum of Anthropology of the University of



Fig. 1 Malayan Blow-gun Poisoned Darts.

California, and he very kindly arranged with the curator, Mr. E. W. Gifford, to lend them to me for the purposes of this study.

One of the darts was 33 cm., the other 31.5 cm. long. The shafts were 3.5 mm. in diameter in the middle, tapering toward both ends to 2.5 mm. The material looked like bamboo, the points being still covered with the bark, which no doubt makes them

¹ Hall and Whitehead, A Pharmaco-Bacteriologic Study of African Poisoned Arrows., Jour. Inf. Dis., 41: 51, 1927.

harder, but Smith² has recently stated that the darts of the Kenyah of Sarawak are made from the Nibong palm. The larger point was 4.2 cm., the smaller 3.7 cm. in length and each was provided with two staggered blunt barbs as illustrated in figure 1. About 1 cm. back of the points the shafts were notched all the way round with the very evident intent that the point should be broken off in a wound from which any one tried to remove the dart.

The posterior end of each shaft was glued into a conical piece of pith about 1 cm. in diameter, which obviously must represent approximately the bore of the blow-gun in which they were to be used. There was a thread wound spirally about each shaft for almost the total length; this thread might impart a slight twist to the flight of the dart but its more apparent purpose seemed to be to hold the hard black poison with which both the shafts, and particularly the points, were thinly smeared.

These darts are used by the natives of the Malay peninsula and of Borneo in the blow-gun or sumpitan, which is a hollow tube from 6 to 8 feet in length and one inch in diameter. According to Skeat and Blagden³ the tube is made either from certain species of bamboo (*Bambusia Wrayi* or *B. longinodis*), or from a piece of solid hardwood bored out, or from two grooved pieces fitted together.

My interest in these darts grew out of the suspicion that, like the poisoned arrows of the New Hebrides studied by Ledantec⁴ and those of the Bushmen,¹ they might harbor not only potent organic poisons but infectious germs as well.

Although much has been written concerning the famous Upas tree and the Ipoh (poison) of the Malays, during the century that has elapsed since the experiments of Delisle and Magendie⁵ in 1810, there are only a few references that suggest that poisoned darts might have infectious properties also.

² Smith, Sarawak: The Land of the White Rajahs. Nat. Geog. Mag., 35: 110, 1919.

³ Skeat and Blagden, Pagan Races of the Malay Peninsula. 1: 242, 1906.

⁴ Ledantec, Origine tellurique du poison des flèches des naturels des Nouvelles Hébrides. Ann. Inst. Past., 4: 716, 1890.

⁵ Delisle and Magendie, quoted by Seligman (9).

Wray⁶ for example, in 1891, performed inoculation experiments upon fowls which were inconclusive and suggested infection, and Roth⁷ quoted Burbridge to the effect

that the arrows for the sumpitan were first steeped in the juice of upas (*Antiaris toxicaria*) and then stuck into a portion of a decaying human body in the full sunshine, for a month or more,

and further from Wittes' diary,

the fatal termination of blow pipe wounds is often aggravated by internal festering through the tips of the arrows breaking off after penetrating into, say the abdomen. The arrow is purposely formed to facilitate this.

So far as I am aware, there is no record of any prior bacteriological study either of Malayan darts or of wounds caused by them.

The poison is said to be derived mainly from the upas tree (*Antiaris toxicaria*) which Wray⁶ described as sometimes attaining a diameter of five and a height of one hundred feet. The sap is collected by making herring-bone marks in the bark and is concentrated into a thick syrup by boiling. The Semang mix with this the sap of a thorny creeper and the juice of a certain tuber, respectively according to Lewin⁸ *Strychnos tieuté*, and *Derris elliptica*. The Kenyah of Sarawak in Borneo on the other hand use only the sap of the upas tree unmixed with other ingredients. There is much confusion in the use of the term "ipoh"; apparently it may be used to designate any or all poisons, pure or mixed, in the region of Borneo and the Malay peninsula.

This being true, it is not surprising that there is much confusion regarding the chemical nature of ipoh, which is apparent not only in the older inaccessible literature as reviewed by Seligman⁹ but also in more recent papers.

⁶ Wray, Ipoh Poison of the Malay Peninsula. Kew. Bulletin, 1891, pp. 25 and 259; id., Jour. Anthrop. Inst. Great Brit. and Ireland, 21: 476, 1892; id., Kew. Bulletin, 1895, p. 140.

⁷ Roth, The Natives of Sarawak and British North Borneo. 2: 184, 1896.

⁸ Lewin, Die Pfeilgifte III. Die Pfeilgifte Asiens. Virchow's Archiv. Path. Anat. 138: 283, 1894.

⁹ Seligman, Note on the Preparation and the Use of the Kenyah Dart Poison Ipoh. Jour. Anthrop. Inst., 32: 239, 1902; id., On the Physiological Action of the Kenyah Dart Poison Ipoh and its Active Principle Antiarn. Jour. Physiol., 29: 39, 1903.

Lewin⁸ demonstrated strychnine in certain samples both by animal and chemical tests, but was unable to detect brucin. He also extracted the glucoside, antiarin, and determined its chemical formula— $C_{18}H_{32}O$.

Roth⁷ heard that antimony was sometimes mixed with the sap of the upas tree but Geiger¹⁰ was unable to find either antimony or arsenic in the samples he examined and considered the poison to be purely plant or animal in origin.

As Skeat and Blagden³ have pointed out,

the proper proportions of the ingredients used in making the dart poison of the wild tribes have doubtless been ascertained by centuries of trial, and are now in many cases handed down from father to son. Although, however, the basis of the poison may be the same among all the members of a given tribe, the exact proportions, and even the exact ingredients, forming the "blend" vary to a very great extent with the individual and (of course) with the locality and the season, and hence any conclusions must be necessarily general ones.

Among the substances used at times, according to these authors, are the poison fangs of snakes, stings of scorpions, arsenic, *Pangium edule* (Reinw.) which contains prussic acid, and various comparatively harmless ingredients such as pepper, tobacco, capsicum, and onion, regarded by the natives as likely because of their pungent properties to produce inflammation.

Seligman⁹ studied the freshly drawn sap of the upas tree and found it to be neutral in reaction, yellowish in color, and intensely bitter in taste. It soon darkened on exposure to the air. The Kenyah concentrate it by heating for several hours, when it slowly solidifies into a hard black resinous mass ready for use as poison. It is almost entirely soluble in water.

Seligman recovered antiarin in microscopic crystals or flat plates melting between 208° and 215°C. by extraction with boiling benzine for two days to get rid of inert resins, solution of the residue in water and precipitation of the pigment with basic lead acetate, removal of excess lead from the clear filtrate with sulfuretted hydrogen, neutralization with chalk, evaporation of the filtrate to dryness, extraction with alcohol and crystallization

¹⁰ Geiger, Beitrag zur Kenntniss der Ipoh-pfeil-gifte. Diss., Basel, 1901. Quoted by Skeat and Blagden (3).

by evaporation of the alcohol. These crystals were purified by repeated crystallization out of water and alcohol.

The crystals were found to be nitrogen free and to yield on hydrolysis a reducing substance and an inert yellowish substance. Several analyses suggested the formula of a glucoside, $C_{21}H_{30}O_5$ (compare Lewin).

Seligman found that the crude ipoh

acts in the ventricle of the heart as a poison of the digitalin group. . . . causes paralysis of the central nervous system, and passing clonic spasms of the voluntary muscles,

but the clonic convulsions were not produced by the pure glucoside.

Any one interested in comparative studies of arrow poison should consult the comprehensive monographs of Lewin¹¹ and of Perrot and Vogt.¹²

EXPERIMENTAL WORK

In an attempt to avoid a possible criticism of the bacteriologic study, that micro-organisms were derived from surface contamination of the darts, their points were quickly rinsed in several changes of sterile distilled water and then dried in sterile tubes. It is recognized, of course, that this procedure cannot absolutely obviate the possibility of surface contamination. After several days of drying, the poison was cracked off of each point by means of a sterile scalpel into a sterile Petri dish, where it was left for several days longer until it became "bone dry" when it was weighed. 23 mg. were recovered from the longer dart, 35.1 mg. from the shorter dart. The material was black, hard and brittle.

Each lot was ground in a sterile mortar and suspended in 10 cc. sterile distilled water. The poison was incompletely soluble; in each case a grayish residue settled out.

Toxicity Tests

A 300 gram guinea-pig was inoculated subcutaneously with 1 cc. (2.3 mg.) of the suspension of poison from the longer dart. It developed no symptoms at any time and lived.

¹¹ Lewin, *Die Pfeilgifte, Histrionische und experimentelle Untersuchungen*. Diss. Berlin, 1894.

¹² Perrot and Vogt, *Poisons de flèches et poisons d'épreuve*. Vigot, Paris, 1913.

Another guinea-pig of the same size was inoculated subcutaneously with 2 cc. (4.6 mg.). The development of symptoms was as follows:

Up to 40 minutes—no symptoms.

42 minutes—retching and wiping nose with fore paws.

47 minutes—shivering.

52 minutes—jumping and crying out.

55 minutes—prostrate, kicking, heart very feeble and slow, gasping.

59 minutes—dead.

Immediate autopsy showed the heart in diastole but on irritation with the scalpel it slowly contracted. All of the other viscera were normal.

Lack of material prevented a closer estimation of the minimal lethal dose. Calculation indicates a toxicity of 0.0153 mg. per gram of guinea-pig.

The poison from the shorter dart was considerably more active as the following data show.

A 225 gram guinea-pig was inoculated subcutaneously with 1 cc. (3.5 mg.) of the original suspension. In 17 minutes the animal began to shiver. Within 2 minutes more it was bucking and squealing in pain. Then it collapsed, pulseless and gasping and died just 25 minutes from the time of injection. Autopsy at once showed subcutaneous oedema at the site of inoculation, and the heart in marked ventricular systole. All other viscera were normal.

A second guinea-pig, weight 250 grams, was given subcutaneously 0.5 cc. (1.75 mg.). It began retching and shivering in 25 minutes, was bucking at 29 minutes, gasping pulseless and prostrate at 30 minutes and dead in 31 minutes. The autopsy findings were identical with those of the preceding animal except that the stomach was ruptured at the cardiac end of the greater curvature.

A third guinea-pig, weight 250 grams, was given 1 cc. of a 1-10 dilution of the suspension (0.35 mg.) and a few days later 3 cc. (1.05 mg.) without result.

Upon the basis of the second animal in this series the calculated toxicity of the poison from the shorter dart was 0.007 mg. per gram of guinea-pig.

So far as the tests go they confirm the much more extensive findings of Seligman⁹ except that this investigator found the lethal dose for guinea-pigs to be about .002 mg. per gram. This discrepancy may be due to deterioration of our poison by long storage, certainly over 17 years, and possibly much longer. Seligman noted that the heart always stopped in systole in frogs but in guinea-pigs often in diastole with slow postmortem contraction as noted in our first animal.

It was impossible to duplicate any more than this small fraction of Seligman's tests owing to the minute amount of material available; indeed our pharmacologic interest in these darts was incidental to their bacteriologic study. The small amount of material also limited the chemical study to a few qualitative tests.

Chemical Tests

For the chemical tests a small amount of each suspension of poison was diluted so that 1 cc. contained 1 mg. of the crude material, and filtered through hard paper (Schleicher and Schüll, No. 575). The filtrates were quite clear and light brown in color. Both were alkaline in reaction, that from the longer dart pH 8.2, that from the shorter dart pH 8.4. There was no precipitate with iodine solution, picric acid, or with Mayer's reagent (mercuric-potassium iodide), and thus no evidence of alkaloids.

The simple tests for glucosides,¹³ such as formation of dark precipitate with silver nitrate, and of a greenish brown precipitate with concentrated sulfuric acid having in it a trace of ferric chloride, were positive. But farther than this it was impossible to go owing to the exhaustion of the material.

Both this and our study of the African poisoned arrows¹ have shown the futility of chemical examination of the poison taken from the arrows. Although with the African arrows we secured enough material for purification, it was impossible to identify the crystals secured with certainty owing to the small quantity. But the amount of poison obtainable from the Malayan darts was so small that only the above preliminary tests could be performed. It is apparent that the true identification of arrow poisons can be accomplished only by securing the original ingredients, as Seligman⁹ actually did in the case of ipoh.

Bacteriologic Tests

The procedures followed were identical for both darts and insofar as the findings were similar they will be recorded jointly.

Microscopic examination of the insoluble material in the fresh

¹³ Fuller, *Chemistry and Analysis of Drugs*. Wiley, N. Y. 1920.

suspensions of poison showed only unrecognizable amorphous debris, with a very few Gram positive rods in each case.

As our main interest lay in detecting pathogenic bacteria, all cultures were incubated at 37°C.

Eosin methylene blue lactose agar plates according to Levine's formula¹⁴ were streaked; no growth appeared within 48 hours. There was thus no evidence of *Bact. coli* or other fecal bacteria.

Milk in constricted tubes¹⁵ inoculated with 1 cc. of each suspension showed no change during the first two days but was slightly coagulated on the third day and gradually liquefied on succeeding days from the surface downward; there was no indication of the "stormy" fermentation characteristic of *Bacillus Welchii* and the absence of this organism may therefore be assumed. The changes in the milk are adequately explained by the presence of "hay bacilli."

Glucose broth constricted tubes showed growth only above the marble seal, as indicated by turbidity and heavy pellicles,—due to "hay bacilli."

Glucose meat mash broth in constricted tubes, which Peterson and I found so valuable in tests for toxigenic anaerobes¹⁶ showed some gas below the seals, in addition to turbidity and heavy pellicles at 48 hours. Two sets of animal tests were made from these cultures, one upon the first appearance of good growth, i.e., at 48 hours, for the invasive anaerobes such as *B. Welchii*, *B. septicus*, *B. histolyticus*, and *B. Chauvoei*, the second after one week for the toxigenic species, *B. tetani*, *B. botulinus*, and *B. Novyi*. None of the tests proved fatal; they were therefore negative for the presence of seriously pathogenic micro-organisms, although there was some evidence of pathologic effects in the first set, as here indicated.

A 300 gram guinea-pig was inoculated subcutaneously with 2 cc. of the 48 hour glucose meat mash culture from the longer dart. On the following day

¹⁴ Levine, *Bacteria Fermenting Lactose and Their Significance in Water Analysis*. Bull. No. 62, Iowa State College, 20—No. 31, 1921.

¹⁵ Hall, *A New Aerobe-Anaerobic Culture Tube*. Univ. of Calif. Publ. in Path., 20: 147, 1915.

¹⁶ Hall and Peterson, *The Detection of Bacillus Botulinus and Bacillus Tetani in Soil Samples by the Constricted Tube Method*. Jour. Bact., 9: 201, 1924.

it showed an area of induration due to subcutaneous oedema 2 cm. \times 3 cm. which subsided gradually during the following week. There was no break in the skin and the animal lost no weight.

A 300 gram guinea-pig was similarly inoculated with the culture from the shorter dart. On the following day there was a large area of subcutaneous oedema 3 cm. \times 5 cm. containing fluid which progressed to necrosis and on subsidence in about 3 days left an ulcerated eschar 1 cm. in diameter which slowly healed. The animal lost no weight.

The second set of tests was completely negative, although the conditions were sufficiently severe as certainly to indicate strong toxins if they had been present.

A 150 gram guinea-pig was inoculated subcutaneously with 1 cc. of the 7 day glucose meat mash culture from the longer dart; there was no indication of any pathogenic effect.

Identical results were obtained with the 7 day culture of the shorter dart.

It was thus necessary to conclude that none of the toxin forming bacteria, such as *B. tetani* or *B. botulinus*, was present.

But, while the first set of tests, with 48 hour cultures, failed to kill the animals, the lesions were sufficiently severe as to suggest the presence of pathogenic bacteria, in anticipation of which the usual procedures were already being carried out separately for aerobic bacteria and for obligately anaerobic bacteria.

Without discussing details of technic,¹⁷ it may be said at once that no evidence of obligate anaerobes was found. Only aerobic bacteria were present in the cultures and all of these belonged to the group of aerobic spore-bearing bacilli, commonly known as "hay bacilli."

It is unfortunate that we have, as yet, no classificatory key that enables one satisfactorily to identify these organisms. The comprehensive descriptions of Ford and his collaborators¹⁸ leave us without accurate definitions of species, and Bergey's key¹⁹ attempts to utilize for major subdivisions, characters which seem

¹⁷ Hall, Practical Methods in the Purification of Obligate Anaerobes. Jour. Inf. Dis., 27: 576, 1920.

¹⁸ Ford et al. Studies on Aerobic Spore-Bearing Non-Pathogenic Bacteria. Jour. Bact., 1: 273, 493, 1916.

¹⁹ Bergey, Manual of Determinative Bacteriology. 2nd ed., Williams & Wilkins. Baltimore, 1925.

to the writer variable and uncertain, such as length of chains, form of liquefaction in gelatin, and the presence or absence of pellucid dots in surface cultures. One regrets having to avoid the specific identification of these organisms but this seems preferable to calling them all "*Bacillus subtilis*" and pretending at a knowledge not possessed. I shall content myself therefore with a brief description of the outstanding characters, and an emphasis upon the fact that several of these organisms are capable of a certain degree of virulence for guinea pigs.

Six distinct species were isolated from the long dart, by direct picking from a blood agar plate streaked from the primary suspension, as follows:

1239-1, gram positive motile rods, $0.5\mu \times 3$ to 10μ , with central elongate spores not swelling the rods—producing a moderate viscous growth upon plain agar, colorless at first but later yellowish, delicate non-hemolytic growth upon blood agar, no change in milk during two weeks incubation at 37°C (successful inoculation checked by subculture on agar.) liquefaction of gelatin, a delicate ring without pellicle, and acidity with slight gas production in glucose broth.

Inoculation of a 200 gram guinea-pig with 2 cc. of a 48 hour glucose meat mash culture produced overnight a moderate subcutaneous oedema without softening which subsided in two or three days.

1239-2, Gram positive motile rods $0.5\mu \times 3$ to 8μ , producing in older cultures, long (10–15 μ) whips with subterminal spores which swell the whips, a slightly viscous grayish growth upon plain agar, a moderately heavy hemolytic growth upon blood agar, no action in milk, no liquefaction of gelatin, delicate ring without pellicle, and acidity without gas in glucose broth.

Subcutaneous inoculation of a 200 gram guinea-pig with 2 cc. of a 48 hour glucose meat mash broth culture produced overnight a diffuse oedema without softening which subsided within 24 hours.

1239-3, Gram positive motile rods $0.5\mu \times 3$ to 10μ , with central elongate spores not swelling the rods, producing a non-viscous slightly yellowish moderately heavy growth upon plain agar, delicate hemolytic growth on blood agar, slow coagulation of milk followed by liquefaction, liquefaction of gelatin, and turbidity, pellicle, gas, and acid formation in glucose broth

Subcutaneous inoculation of a 200 gram guinea-pig with 2 cc. of a 48 hour glucose meat mash culture produced overnight a moderate subcutaneous oedema which rapidly subsided.

1239-4, Similar to the preceding except that the growth upon plain agar was gray rather than yellowish.

Subcutaneous inoculation of a 200 gram guinea-pig with 2 cc. of a 48 hour glucose meat mash culture produced moderate oedema with local softening at 24 hours. The following day the oedema had subsided but there was

a small break in the skin which was followed by an ulcer on the fifth day 1 cm. in diameter, which slowly healed.

1239-5, Very large non-motile, gram positive rods, $1.5\mu \times 8\mu$ containing round non-bulging spores, and occurring in chains, producing a heavy grayish non-viscous growth upon plain agar, a moderate hemolytic growth upon blood agar, slow liquefaction of gelatin, slow coagulation of milk followed by liquefaction, turbidity without pellicle, and acid and slight gas in glucose broth.

Inoculation of 2 cc. of a 48 hour glucose meat mash culture into a 200 gram guinea-pig had no effect.

1239-6, Motile Gram positive rods $0.7\mu \times 3$ to 6μ , with numerous oval central non-bulging spores, with a thin growth upon plain agar, at first chalky white but later heavy and yellow, a delicate hemolytic growth upon blood agar, coagulation and liquefaction of milk, liquefaction of gelatin, and turbidity, pellicle, acid and gas in glucose broth.

Inoculation of a 150 gram guinea-pig with 2 cc. of a 48 hour glucose meat mash culture was followed next day by a slight subcutaneous oedema with considerable local softening, rapid subsidence of the oedema and an open ulcer 0.5 cm. in diameter on the 4th day which slowly healed.

Four distinct species of "hay bacilli" were recovered in pure culture from the shorter Malayan dart, three by isolation from a blood agar plate streaked from the primary suspension, one (1240-4) after several vain attempts to demonstrate obligate anaerobes by the method of selective bacteriostasis (17).

1240-1, Actively motile Gram positive rods, $0.5\mu \times 2$ to 13μ , with central elongate non-bulging spores, producing a thin moist light brown spreading growth on plain agar, active hemolysis on blood agar, coagulation followed by liquefaction of milk, liquefaction of gelatin, and turbidity, pellicle and acidity without gas in glucose broth.

2 cc. of a 48 hour glucose meat mash broth culture produced moderate oedema without softening in a 200 gram guinea-pig, which rapidly subsided in 2 or 3 days.

1240-2, Apparently identical in every respect with 1239-5.

1240-3, Very actively motile Gram positive rods, $0.6\mu \times 3$ to 6μ , with oval spores slightly swelling the rods, producing a dry chalky growth on plain agar, a delicate hemolytic growth on blood agar, coagulation and liquefaction of milk, liquefaction of gelatin, and turbidity, pellicle, acid, and slight gas production in glucose broth.

2 cc. of a 48 hour glucose meat mash broth culture produced moderate subcutaneous oedema in a 200 gram guinea-pig with local softening and necrosis of the skin followed by an ulcer 1 cm. in diameter which slowly healed.

1240-4, Actively motile Gram positive rods, 0.6μ to $0.7\mu \times 3$ to 6μ , with elongate central spores swelling the rods, forming extremely delicate transparent colonies on plain and blood agar, hemolytic, slowly coagulating and

then liquefying milk, not liquefying gelatin, and producing turbidity without pellicle, acid and considerable gas in glucose broth.

Inoculation of a 200 gram guinea-pig with 2 cc. of a 48 hour glucose meat mash broth culture failed to show any indication of pathogenicity.

From these results it is evident that these Malayan darts, in contrast with poisoned arrows of the Bushmen, carried no seriously pathogenic bacteria, for none of the animals died even with the rather massive dosage to which they were subjected.

It was really quite surprising to find such a large proportion of these cultures (7 out of 10) producing demonstrable lesions in guinea-pigs, because *Bacillus anthracis* and *Bacillus histolyticus* have ordinarily been regarded as the only aerobic spore-bearing bacilli pathogenic for warm blooded animals. Even now we must regard these two as the only ones possessed of sufficient virulence to cause death in experimental animals except in enormous doses, such as were used by Charrin and de Nettis.²⁰ These investigators killed guinea-pigs with doses of 12-20 cc. per kilogram of body weight, with oedematous lesions, and showed that successive animal passage enhanced the virulence so that similar results could be secured with smaller doses. Subsequently Kayser²¹ and others ascribed an etiologic role to *B. subtilis* in traumatic panophthalmia in man, and Silberschmidt²² reproduced this condition in rabbits by carefully controlled inoculations.

A complete review of the recorded evidence for pathogenicity in the hay bacilli would be out of place here; the interested reader should look up the recent work of Sweany and Pinner.²³

Certainly a demonstration of oedema and ulceration such as appeared in my animals suggests that the hay bacilli, if not capable alone of producing death, might at times play an important synergic role in mixed infections as is claimed by Hobbs

²⁰ Charrin and de Nettis, Un bacillus subtilis virulent Contingence de la fonction Pathogene. *Comptes rend. Soc. Biol.*, 49: 711, 1897.

²¹ Kayser, Ein Beitrag zur Frage der Pathogenitat des *Bacillus subtilis*, besonders für das Auge. *Centr. f. Bakt. Abt. 1—Orig.* 33: 241, 1903.

²² Silberschmidt, Le *Bacillus subtilis*, comme cause de la panophthalmie chez l'homme. *Ann. Inst. Past.*, 17: 268, 1903.

²³ Sweany and Pinner, A Pathogenic *Subtilis Bacillus* from a Patient with Chronic Tuberculosis. *Jour. Inf. Dis.* 37: 340, 1925.

and Lafolie.²⁴ This, like the taxonomy of the whole group, is a worthy problem for the future.

SUMMARY

Toxicity tests showed that the poison scraped from two Malayan blow-gun poisoned darts more than seventeen years old was still active in doses of 0.007 mg. and 0.0153 mg. per gram weight of guinea-pig. Owing to the small amount of poison available, extensive studies of its physical and chemical properties were out of the question but there was no evidence of alkaloids. The poison seemed definitely to be glucosidal, as has also been found by Seligman and other investigators.

The bacteriological examination of the poison failed to reveal any seriously pathogenic micro-organism such as the writer with Dr. Whitehead found upon the poisoned arrows of the African bushmen. The only organisms detected were "hay bacilli," i.e., sporulating aerobic rods. While these organisms are ordinarily regarded as non-pathogenic, seven out of the ten species isolated were found to be capable of producing rather severe but transient lesions in guinea-pigs and it is suggested that they may on occasion, play a synergic role in mixed infections.

Attention is again called to the need for more extended studies of this exceedingly common group of micro-organisms.

UNIVERSITY OF COLORADO MEDICAL SCHOOL

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²⁴ Hobbs and Lafolie, *Rôle pathogène du Bacillus subtilis associé à d'autres microbes*. 13th Cong. Internat. de Med. Section on Gen. Path., 315, 1900.

THE FUR TRADER IN ANTHROPOLOGY: AND A FEW RELATED QUESTIONS

By A. G. MORICE, O.M.I.

WHEN it is a question of reliability, it stands to reason that an anthropologist who writes from personal knowledge, acquired by a long stay and serious study among the people he describes, cannot be classed in the same category with one who never saw these and depends on others for what he says of them. In the case of the latter, the value of his assertions will naturally be in proportion to that of his authorities. Hence the absolute necessity for him to ascertain and constantly bear in mind the degree of credibility of his sources of information, if he does not want to be misled into wrong conclusions.

Of course, the dicta of an evidently prejudiced or ill-informed author cannot have the same weight as those of a simple-minded, careful and straightforward writer, and it seems clear that an educated and intelligent observer, especially if familiar with the language of the people whose sociology he tries to expose, will find readier credence than the ignorant and uncritical scribe who bases most of his records, or supposed facts, on hearsay evidence, were this even that of a tried interpreter.

With regard to now practically extinct ethnological divisions of mankind, such as the Beothuk of Newfoundland, the Chinook of Oregon, the Natchez and Taensa of the Mississippi and the Mandan of the Missouri, we have to content ourselves with the declarations and *obiter dicta* of the discoverers and contemporary travellers, to which we may add as supplementary evidence the journals of the more or less disinterested fur traders who did business with them. But who would today turn to the pages even of a La Salle or a Tonty, to mention only the French, if, having mastered the dialect of a native tribe, he could have at his disposal the services of its old men, the natural guardians of its history and legitimate keepers of its manners and customs?

To me to ask the question is almost tantamount to answering it. Not so however it would seem, with a recent contributor to

the pages of this journal who, having had one of his data concerning a by no means extinct Déné tribe challenged by one who passed nineteen years in close contact with the same, unhesitatingly prefers to the formal declaration of this student the supposed assertion of a fur trader who could never understand a word of its language,¹ and shields himself behind the personality of a more or less scrupulous half-breed for much of what he writes.

Before following him through the intricacies of his labored argumentation, I am therefore confronted by the necessity of examining the real worth of his chief authority.

I refer here to the Indian trader, Daniel Williams Harmon, who spent eight and a half years (from November 1810 to March 1819) at Stuart Lake and other parts of New Caledonia, today the northern interior of British Columbia, and his Journal passages of which have been made by Mr. W. C. McLeod the excuse for animadversions on something I had myself written.²

In the first place, I must put on record my utter unwillingness to accuse that trader-author of the least attempt at wilful misrepresentation, of the remotest intention of exaggerating or disguising the real facts. Any shortcomings of his must evidently be blamed on his ignorance of the language of those whose manners and customs he tries to depict, and does at times depict with a master hand.

But let us not forget at the outset that the anthropological value of his little book is notably impaired by two circumstances it is well to bear in mind. In the first place, his Journal was not issued as he wrote it. The party responsible for its publication,

¹ There has not been to this day a trader or missionary, apart from the writer, who ever knew the extremely difficult language of those Indians. A Mr. A. C. Murray—the son, by the way, of the author of the valuable colored sketches on the Loucheux which adorn the first volume of Richardson's book—was at Stuart L. a few years before me and remained there quite a time after I had left. Yet he had to confess that, outside of a few stereotyped phrases proper to the fur-trade, which he pronounced his own way, he could not build one correct sentence in that language.

² Father Morice and the Sikanni, *AMERICAN ANTHROPOLOGIST*, 1926, 566–70. The name of those Indians is variously written, and my own spelling of it, which is in vogue among the French, is not any more correct than those of McLeod or Harmon. Their true denomination is Tšékéhne, “stones-on-people,” which obviously is not practical for current literature.

a Rev. Daniel Haskel, admits explicitly that he had "written it wholly over."³ Unmistakable traces of that literary interference which, of course, detracts not a little from its worth in the eyes of the anthropologist, will shortly be pointed out.

In the second place, the bibliophile Field, "who was no mean authority, also believed that the *Account of the Indians living west of the Rocky Mountains*, to which Mr. McLeod attaches such importance, and which he gives in italics as recording "*his maturer observation*,"⁴ was "written by another hand."⁵ In full justice to Harmon, it is only right that one should not lose sight of this double drawback.

Now as to the real degree of reliability of that little work as revised by Haskel and reprinted at Toronto,⁶ surely if its author can make mistakes of a geographical nature concerning the country of his Indians, in connection with points which he more than once passed by in the course of his travels, he can err when it is a matter of the sociology of a tribe with which he was not, after all, living, and which he knew chiefly by hearsay.

But let the investigator open his *Journal* at p. 158. He will read that the would-be north branch of the Peace river, in reality the true and only course of that stream west of the Rockies, "runs out of a very large lake called by the natives Musk-qua-Saky-e-gun, or Bear's Lake." That lake, he adds, is so large that "the Indians never attempt to cross it in their canoes," and those who reside at the east end of it affirm that "it extends to the West Ocean."⁷

What truth is there in this statement? None whatsoever. Harmon is here simply the victim either of a misunderstanding or of a native mystifier, just as he would have been if he had really stated that the Sékanais practised cremation. The headwaters of the Peace, called the Finlay west of the mountains, consist

³ P. XIII of the Toronto reprint.

⁴ Ubi *suprà*, 567.

⁵ P. VIII.

⁶ By George N. Morang and Co., 1904.

⁷ A *Journal of Voyages and Travels in the Interior of North America*. As to its English name, it is evidence of a gross confusion whereby a small lake lying in a quite different region is taken for the headwaters of the Finlay.

on the contrary of a small and very narrow lake well denominated Thutade, narrow water, by the natives.

Our trader further asserts that both "branches" of the western Peace, as he calls quite erroneously two streams which have nothing to do with one another, appear "to be of about the same magnitude."⁸ This is quite false, as any one can ascertain. His north branch, namely the Finlay or the real Peace, carries at least twice as much water as his south branch, the Parsnip river, a comparatively unimportant tributary. Mr. McLeod may refuse to take as proof of this my own original map published in 1902 by the Government of British Columbia; but he can repair to the confluence of both streams and judge for himself, unless he prefers to rely on McConnell's map issued by the Geological Survey of Canada.

This is so true that the Sékanais call the Finlay *Tcû-tcî*, or Big Water.

Nor were Harmon's data concerning even the region at his very door much more correct. He claims that Fraser lake lies "nearly fifty miles due west from this" Stuart lake,⁹ while, by the trail used in his time, the distance between the two sheets of water was scarcely more than thirty, as a fellow trader, John McLean, has it in his own book.¹⁰ Harmon likewise estimates at twenty miles the distance between (old) Fort Fraser and Stella,¹¹ two points which are hardly twelve miles apart.

Could one so much astray with regard to what was to him rudimentary local geography be more accurate when it was a question of ethnography? Scarcely. Hence we should not wonder if we see him affirm, after his interpreter, of course, that the language of the Fraser lake Indians

strongly resembles that spoken by the Sicannies, and [that] no doubt they formerly constituted a part of the same tribe.¹²

⁸ Ibid., *ibid.*

⁹ Journal, p. 161.

¹⁰ Notes of a Twenty-Five Years' Service in the Hudson's Bay Territory, 1: 285. London, 1849.

¹¹ Journal, 184.

¹² Ibid., 161.

As a matter of fact, the dialect of those aborigines differs at least as much from that of the Sékanais as does that of the Stuart lake Indians. The former division forms the southern, the latter the northern, Carriers. As to the Sékanais, they are not even western but eastern Déné, even though some of them now have their hunting grounds to the west of the Rocky mountains. Their language, though genetically related to that of the Carriers, is quite different in grammatical and morphological forms. If Mr. McLeod will only repair to their haunts and spend nineteen years in the study of both idioms, he will come back fully persuaded of this.

Pending this, or the publication of my Grammar-Dictionary, he will have to content himself with my word on that score.

Will Harmon prove more reliable from a sociological standpoint? His journal contains in this respect most important material, but it is not free from error. Thus speaking of five Sékanais who passed by Stuart lake, he says that "their intention was to go and try to take a scalp or two from the Indians of Fraser's lake,"¹³ and farther on he proceeds to show us the head-chief of Stuart lake boasting that he had "brought home many of the scalps of his enemies."¹⁴

McLeod complains, with regard to another point of Carrier sociology I have brought to his notice, that he "cannot find it in Harmon."¹⁵ If my assertion was gratuitous because he could not find it there, it might seem to follow that what that author really has, what he so emphatically gives in his book, namely the act of scalping, must have been practised by both Sékanais and Carriers. Is not my induction logical?

My critic must therefore believe that that custom was beyond the shadow of a doubt prevailing in Harmon's time—as much, at least, as cremation, which he expressly states was unknown to the Sékanais. Yet it is hard to find a better established sociological fact than that, either then or after, scalping was practised by neither Sékanais nor Carriers, nay by not one of the tribes west of

¹³ Ibid., 169.

¹⁴ Ibid., 174.

¹⁵ AMERICAN ANTHROPOLOGIST, 28: 569.

the Rocky mountains, except, later on, in one case or two, at the instigation of whites hailing from the territory of the Cree. Old 'Kwah, who is represented as mentioning that barbarous custom would have been very much astonished if he had been told that it was in vogue anywhere in the world.

Indeed, I cannot help feeling that those references to scalping in Harmon's little volume are not his. He must have known better. They are surely to be attributed to his censor and editor, who probably thought he was improving on the too plain style of the fur trader, by these hints at what is almost a classical way of rendering the idea of victory when it is a question of the Plains Indians.

An authority unreliable on such an important point of native sociology as that attributed to a people living at his door could certainly err in the matter of cremation with regard to nomads roaming in a distant country.

"I never knew a Carrier to be grateful for a favor bestowed upon him," the same authority asserts further on. All I can say is that, after a residence in that tribe covering more than twice the period of time he passed in its midst, in the pursuance of an avocation which brought me in contact with five times more Carriers than he ever dealt with, I never saw one who was entirely devoid of the sense of gratitude. But it must be understood that the Indian being a grown-up child, manifests it as a child and therefore not so long as is usual with our adults.

And then we should not lose sight of the fact that, very acute under the appearances of the greatest simplicity, he fully realizes that the fur traders live at his expense and without any great labor. For that reason, he considers them as being in reality his debtors. Hence, in his estimation, any favor emanating from them is more part payment of an obligation than gratuitous benefaction.

Harmon also states¹⁶ that

the Carriers are almost entirely ignorant of medicine, not having any knowledge of the virtue which is found in roots and herbs when administered to the sick.

¹⁶ Journal, 262.

As a refutation of this, I need only refer to my own paper on "Déné Surgery," which appeared twenty-two years ago in the *Transactions of the Canadian Institute*.¹⁷ Here again our author was innocent of any attempt at deception. His statement must have been prompted by the declaration of natives in quest of the remedies of the whites, very much prized and proportionately sought after because often very strong to the palate. A beggar never boasts of his hidden treasures.

Less disinterested are the errors, nay misrepresentations, of another fur trader, John McLean, who succeeded him a few years later at Stuart lake. An abler man with a better education, McLean was something of a misanthrope, who nourished resentment against two parties: his employers, the Hudson's Bay Company, who did not treat him up to his deserts, and the Carriers whom he found inferior to the eastern Indians among whom he had previously labored.

His antipathy to the latter betrayed him into ridiculously false assertions, against which the careful anthropologist should be on his guard

The Takelly [he means Thakeł] language has not a term in it to express the name of the Deity, spirit or soul,

he gravely declares.¹⁸ The Thakeł, or Carrier, language has more words than ours to render those ideas. But the fur trader of 1833 did not know them, just as all his successors have ever been ignorant of them.

Even in his own time, the natives of Stuart lake had two words for God, one of which antedated the arrival of the whites among them: *Futtare*, "that which is on high," and another which had been introduced by the preachers of a new religion lately introduced from Oregon. This latter McLean writes *Yaka-sita*; but, falling from the pen of a fur trader, it is but natural to infer that it is wrongly rendered. As a matter of fact, it is *Ya-kæ-šta*, "He sits on the sky," and has remained the official name

¹⁷ P. 15; Toronto, 1904.

¹⁸ Notes of a Twenty-Five Years' Service, 1: 265.

of the Divinity. But *Nepa*, "Father of Men," and *Nto-Mutih*, "Celestial Chief," are also quite often used today.

As to our word "spirit," the Carriers have always rendered it by *ni*, and they have besides terms corresponding to our "phantom" and "ghost." With them the soul is called *nezal* when considered as animating the body, *netzen* when believed to be straying away from its normal seat, the body, and *nezul* when death has parted it therefrom. At any rate, it is under that name that the disembodied remnants of man are said to be wandering in the world of spirits after death.

Speaking of oaths, McLean ascribes to the Carriers the formula "the toad hears me." I am almost tempted to question his seriousness. Those Indians said in his time: *Yuttare suziltsai*, God listens to me, or *Yuttare nal adwsni*, I say it before God. I have myself oftentimes heard that archaic form used by old people. Never, of course, any reference to toad or frog.

Yet such are the sources of information which some anthropologists would fain palm off as respectable authorities upon unsuspecting students! And all of these mistatements in one of McLean's meagre pages!

The same fur trader furthermore has it that

owing to the superstitious notions of the people, the chiefs are still feared on account of the magical powers ascribed to them.¹⁹

It is, he goes on to say,

firmly believed that they can, at will, inflict disease, cause misfortunes of every kind and even death itself.

There is not one word of truth in this, and it is a matter of the greatest wonderment to me that an intelligent man, as McLean no doubt was, could have confounded the chiefs of the tribe with its medicine-men, or shamans. Only to these this statement fully applies. The fact that our author really, but erroneously, confuses the two is exemplified immediately after. "The shadow of a chief, or medicine-man," he then expressly says by an abuse of language truly incomprehensible.

¹⁹ Ibid., 293.

But three pages farther, McLean shows himself scarcely more reliable from an ethnological standpoint. Commenting on the rapid decrease of the Indians, he writes: "I myself have seen many villages and encampments without an inhabitant." So have I; but, being familiar with the language of the survivors, I could learn by merely listening to their disinterested talk, and do know, that our fur trader's conclusions do not flow from his premises.

As I have stated in other papers, notably in my *Notes on the Western Dénés*,²⁰ the Carriers of old used to shift quite often their winter quarters. I wrote in the latter work:²¹

As nobody, however wealthy, sleeps in more than one blanket, a large fire is kept night and day, and so the amount of dry wood kept available in one place is soon exhausted. Since they are possessed of carrying conveniences unknown in olden times, this necessity of shifting one's abode from place to place is not as much felt. But formerly, with their limited facilities for felling trees and bringing the wood home, they had to change every year their winter quarters.

So that Mr. McLean gives as a token of decrease in the native population what is in reality nothing but a proof of its original nomadic condition.

As to that author's qualifications as an ethnographer, let it suffice to remark that, according to him,

the Loucheux have no affinity with the Chippewayan tribes, nor with their neighbours the Esquimaux.²²

Still more out of place would be a mention of the linguistic accomplishments of one under whose pen such a simple word as *Mutih-yaz* (or let us say with a few Indians of his time *Meutih-yaz*), little chief, is transformed into *Meewidi-yazee*.²³

An earlier fur trader, Ross Cox, gravely assures us on the authority of still another that "the Chilcotins speak the Carrier language."²⁴ One will realize the amount of truth there is in this

²⁰ Ap. Trans. Can. Inst., 184; Toronto, 1892-93.

²¹ Ibid., 184

²² Notes, 2: 243.

²³ Ibid., 1: 259. *Yaz* is the Carrier diminutive, which McLean probably mixes up with the *aze* of the Eastern Déné.

²⁴ Adventures on the Columbia River, 2: 373; London, 1831.

when he learns that, on my first coming into contact with the latter, after having sufficiently mastered the dialect of the former to be able to converse with them and give them little speeches which they seemed to enjoy in spite of their necessary incorrectness, I could not understand one word of my new charge!

The same trader gives about those aborigines a still more startling piece of information. With them, he says, "leprosy is common among the young people of both sexes"!²⁵ The good man evidently did not know the nature of that dire disease.

I have, it now seems to me, said enough to show that the old fur traders' contributions to anthropological lore cannot always be taken without a good grain of salt. We may now devote a few minutes to Mr. McLeod's remarks on my criticism of a point or two of his paper on *Certain Mortuary Aspects of Northwest Coast Culture*,²⁶ which he mostly bases on the same. I may neglect a few of his observations such as that concerning my being

shockingly disappointed that on every page of reference I do not find Sikanni corpses blazing up as evidence.

I wonder how I could be disappointed, shockingly or not, at not finding what I claim to be non-existent.

That writer had asserted that "in Harmon's time Sikanni practice was the same as that of the Carriers" as far as the cremation of the dead was concerned,²⁷ and as evidence on behalf of his contention he had referred to p. 161 of that worthy's Journal, where I found, on the contrary, that

the Sicannies bury, while the Tâcullies [the Carriers] burn their dead.

His second reference was to p. 163 of the same, and I read there that the Carriers of Fraser lake were reported to have "burned the corpse of one of their chiefs," while a third one (p. 180) pointed to a Sékanais who was incinerated *among the Carriers*.

Could an error be more palpable? Where was my guilt in pointing it out? When, in the course of my *Notes on the Western*

²⁵ Ibid., 379.

²⁶ AMER. ANTHROPOLOGIST, Jan., 1925.

²⁷ Ibid., 27: 123, Note.

Dénés,²⁸ I took to task for his statements concerning the distribution of the Déné no less a savant than the late Dr. D. G. Brinton, that great anthropologist, not only took my word for it (which he might well have declined to do), but he actually wrote to thank me and presented me with two of his works for having corrected him. It would seem that today's anthropologists do not all belong to Dr. Brinton's school, for, in the teeth of my categorical, though I think courteous, *exposé* of McLeod's oversight, that gentleman ineffectually attempts to answer me by a *tu quoque* argument, and manages to write four long pages of more or less relevant matter without the least, even indirect, admission of his mistake.

Now let it be distinctly understood that, even if we had not the word of Harmon for it, nay, though that trader had written that the Sékanais used to burn their dead as well as the Carriers, instead of expressly stating the contrary as he has done, I would still claim, and proclaim with the greatest emphasis, that they did not. I have been long enough with them and the Carriers to be sure of this. I have seen with my own eyes some of the scaffoldings on which the former's dead rested, no less than a few of the funeral posts supporting the boxes which contained the charred bones which had escaped the action of the flames in the course of Carrier cremation.²⁹ No amount of bickering can alter these facts, any more than it can destroy the information collected from natives who had been the contemporaries of Harmon and McLean.³⁰

Useless for my present critic to speak of "any trait of culture as characteristic of the Sikanni," whether these be Yutsutqenne (he means Yutsut'qenne) or others, nor is it to the point to bring into relief as he does the would-be "important fact" that among them "summer was the season of secret society and other festivals."³¹

Though that gentleman will perhaps "not find it in Harmon," let him be assured that the Sékanai never had any but the crudest culture, with absolutely no secret societies, or even clans or gentes,

²⁸ Trans. Can. Inst., 4: 14-15.

²⁹ No such relics have existed within the Carrier territory for a good many years.

³⁰ It must not be forgotten that my work with the Sékanais dates from 1885.

³¹ AMER. ANTHROPOLOGIST, 28: 567.

hereditary noblemen or petty chiefs and scarcely any festivals of any kind. Indeed it is rather difficult to repress a smile at the mere implicit mention of such institutions in connection with such a primitive people.

These existed among their western neighbors, the Carriers, but they were borrowed sociological items, and since I must again insist that the mourning customs associated with Carrier cremation are the result of diffusion from the Tsimshian,³²

I may be allowed once for all to give my proofs therefor, an evidence which any student can gather on the spot.

The original Déné were the most uncultivated, nay anarchistic, people one can imagine, the most authentic type of the savage—with no government or even social organization to speak of. Indeed, I would fain see in their nomadic bands the living relics of primeval society: groups of unsophisticated human beings seeking their living, without any kind of public restraint, in the recesses of the woods of the depths of the lakes and rivers, under the benevolent eyes of their elders.

And here I fully realize that I run counter to the contention of able and respectable scientists with regard to the priority of patriarchy and matriarchy. I do not pretend to have the monopoly of good sense on a subject which is ever debatable. I merely put on record the conclusions I have reached through my studies of the Déné stock.

It is this in a few words. The father of a family being naturally its support and mainstay, it no less naturally devolves upon him to direct and protect its members. These, when married in their turn, will continue to look up to him for guidance and advice, and will derive whatever social rights may fall to their lot from their close relationship with him. Hence groups of related families under the grandfather, great-uncle, or anyone chosen by the same appear to me the first units of primitive society.

At any rate, such was, before the advent of the whites, the state of the Déné divisions east of the Rocky mountains, including the Sékanais who are an eastern tribe even when living west of that

³² McLeod, *ibid.*, 569.

range. As Mr. McLeod "cannot find it in Harmon," and will not evidently accept my word for it, I find it necessary to refer him to the numerous (over a dozen) works of Father Petitot, notably his *Monographie des Déné-Dinjiè*,³³ his *Etude sur la Nation montagnaise*,³⁴ and other papers, to Bishop Faraud's *Dix-Huit Ans chez les Sauvages*,³⁵ Archbishop Taché's *Esquisse sur le Nord-Ouest de l'Amérique*,³⁶ the numerous and valuable letters of the latter as well as those of Petitot printed in the great, but private, periodical entitled *Missions de la Congrégation des Oblats de Marie Immaculée* (O.M.I.) published quarterly ever since 1862, *Les Missions Catholiques*, of Lyons, France, the *Annales de la Propagation de la Foi*, issued in the same place for over three-quarters of a century, the *Rapports sur les Missions du Diocèse de Québec* (1839-74), which contain valuable and plentiful information on the early Canadian Northwest, without mentioning the innumerable letters of such pioneer Mackenzie District missionaries as Fathers Grollier, Séguin, Grouard, Ducot, Ladet, Laity, Gasté, Lecorre, together with Bishops Grandin, Clut and Pascal,³⁷ all printed in the above mentioned *Missions des O.M.I.* These invaluable communications are first-hand authorities comparable to those of the Jesuit Relations, to which may be added later productions by old contemporaneous missionaries, such as Le Goff's Grammar and Dictionary, their Prefaces, etc.

No anthropologist dealing with northern American aborigines could be excused from studying them if they were open to others than the members of the Order to which I belong. My four-volume *Histoire de l'Eglise Catholique dans l'Ouest Canadien*³⁸ embodies the substance of all of these, without counting scores and scores of unpublished communications from the above-mentioned and other missionaries. This abundant material all

³³ Paris, 1876.

³⁴ Apud *Missions Catholiques*; Lyons.

³⁵ Bruxelles, 1866. That work is signed Fernand Michel, but it was written after Bp. Faraud's notes.

³⁶ Montreal, 1869. That valuable work had originally appeared in the *Missions O.M.I.*

³⁷ I could also refer to Protestant publications, but these relate later efforts.

³⁸ Quebec, 1921-23.

points, quite often implicitly, to patriarchy as obtaining among the unadulterated Déné.

Matriarchy, on the other hand, is consequent on a higher state of society, on more important groupings of less nomadic human beings: related and unrelated families living together in larger numbers in villages or towns. With the bands of individuals allied by the ties of blood under a patriarch, who can hardly be called a chief,³⁹ breaches of the moral code are scarcely possible. But it is not so in the case of the crowds of unrelated persons living in a sedentary condition in the same locality, without sufficient occupation to diminish the occasions of falls. Then the temptations to illicit sexual intercourse are too frequent not to make an impression on people otherwise burdened with no great religious scruples. Daily familiarities between the sexes often degenerate into promiscuity, and a time comes when even the real paternity of children becomes a matter for doubt.

And let it not be imagined that I purposely darken the picture: I know whereof I speak, and there is today more than one native village with a population restrained by no strong religious influence where conditions are at least as bad.

What more natural, then, in order to establish hereditary rights on an undisputed basis, than to have descent follow the maternal, instead of the paternal, line? I do not pretend to have made a thorough study of this question, but that is the way the original Déné compared with their heterogeneous neighbors of the west or the south ever struck me. With all the eastern Déné the patriarchal system is in vogue, while matriarchy, copied from the adjoining tribes, obtains among the semi-sedentary branches of the family which live in close contact with the villagers of the Pacific coast and coterminous aborigines. On the one hand, the patriarchy of nomadic bands with hardly any social organization, not even real chiefs; on the other, hereditary matrilineal chiefs and noblemen with distinctive insignia, ceremonial feasting

³⁹ Indeed, before the advent of the whites among them, even the Carriers and Babines had no real chiefs in our present sense of the word. Cf. *Carrier Sociology*, Trans. Royal Soc. of Can., 10: 118; Ottawa, 1893.

and cremation of the dead instead of aerial burying, labretifery, histrionic masks and other customs proper to more or less sedentary people.

"Copied from the adjoining tribes," have I said of those practices when seen among the westernmost Déné. The grounds for this contention, to me the most undisputed of facts, being again indirectly challenged by a writer apparently unfamiliar with my earlier writings,⁴⁰ I must be allowed to give here, along with new data, the substance of part of my paper on Carrier sociology, today little accessible to students,⁴¹ to which I have, however, to refer the reader desirous of a clearer, because more extended, *exposé* of the question.

Perhaps the greatest characteristic of the Déné stock is its unparalleled receptiveness. This is illustrated in the far south by the manners and customs, as well as the mythology, of the Navaho and other cognate tribes. In the north, we cannot fail to remark that the representatives of that race are ever readily, nay eagerly, manifesting it in our own days by assimilating the religious notions of the whites and copying such of their manners as are consistent with the mode of life imposed on them by nature.

"They are remarkably fond of the white people," said of the Carriers Harmon himself, or the scribe who wrote at his dictation,⁴² while the explorer Sir John Franklin, improving on the fur trader, has it of the eastern Déné that they "strive at an imitation of the manners of the voyagers and traders."⁴³ Another explorer, Thomas Simpson, wrote somewhat later, but in the same strain, of the Great Bear Lake Déné: "They soon became attached to the white men, and are fond of imitating their manners."⁴⁴ Accord-

⁴⁰ "Father Morice . . . still insists that the mourning customs associated with Carrier cremation are the result of diffusion from the Tsimshian"; W. C. McLeod, *AM. ANTHR.*, 28: 569.

⁴¹ *Trans. Roy. Soc. Can.*

⁴² *Op. cit.*, 243.

⁴³ *Narrative of a Journey to the Shores of the Polar Sea*, 1: 156 of the 4th ed. London, 1823.

⁴⁴ *A Narrative of the Discoveries on the North Coast of America*, 243; London, 1843.

ing to Cox, their western brothers and sisters, Carriers and Chilcotin, "are fond of European clothing."⁴⁵

On the other hand, the neighbors of these aborigines of Tsimshian, Kwakiutl or Tlingit parentage are just as remarkable for their extreme conservatism and stubborn adherence to the ways and institutions bequeathed by their ancestors. Catholic missionaries could never make an impression on them, because they stoutly refused to modify these ways and forego their more or less pagan ceremonies.

Now when contact is established between two such dissimilar families, one weak and conscious of its inferiority, the other conceited and strongly attached to the least of its ancestral observances, which of the two is likely to copy? Which one will serve as a model for the other?

As a consequence of such contact: 1st, the Babines and Carriers, to neglect other tribes, have partly abandoned their nomadic life to settle in fixed villages; 2nd, they have exchanged their traditional patriarchy for the matrilineal form of government prevailing among their western neighbors; 3rd, they have adopted all the consequent institutions flourishing among the latter: hereditary petty chiefs, or noblemen (*taneza'*) wearing peculiar ear-rings, the potlatch and attendant festivities, ceremonial dances and theatrical representations, as well as the cremation of the dead—all formerly unknown to the other Déné of the north.

Nay more, if we study closely the march inland of these various institutions, we will not fail to remark that the quantity of the same borrowed by the Déné was in exact proportion to the proximity of the heterogeneous races stationed on the Coast, or immediately east of it. Thus:

1st. The River Babines (of the Bulkley valley), some of whom practically had daily intercourse with the Tsimshian of the Skeena, in the course of time adopted all of their customs, including not only the gentes and petty chiefs, cremation and potlatching, but even the wearing of labrets by the women, the ear-pendants of the chiefs and the erection of totem poles in front of their communal lodges.

⁴⁵ Adventures on the Columbia River, 2: 377.

2nd. The Lake Babines (on the sheet of water which bears their name), a little farther from the aliens, had also borrowed these institutions, but with the exception of the totem poles, when they were confronted by the superior culture of the whites, which stopped further assimilation.

3rd. The Carriers, still farther inland, had also introduced among themselves the same social organization and customs, but *minus* the totem poles, the labrets of the women and the ear-rings of the noblemen.

4th. The Sékanais, quite a distance to the east and newcomers from the opposite side of the Rockies, had merely had time to make an ineffectual attempt at adopting potlatching, and would perhaps have ended by practising cremation had the whites countenanced it.

Notwithstanding Harmon's mention of burying,⁴⁶ the latter had previously disposed of their dead by

catching them up in very rough chests made of crating, or slender logs notched together and raised from three to seven feet above ground,

as Petitot has it of the eastern Déné,⁴⁷ or, if travelling, by simply pulling down "the brush hut on the remains and proceeding with their journey," as I wrote myself long ago,⁴⁸ at a time when I did not know as yet of the remark about the entire family to which they belong which we find in the book of the first explorer who ever came in contact therewith, and which is to the effect that the Northern Indians [*i. e.*, the Dénés] never bury their dead, but always leave the bodies where they die, so that they are supposed to be devoured by beasts and birds of prey.⁴⁹

A later observer confirms this when he writes:

They leave their dead on the spot where they die, without removing them.⁵⁰

This was said of the Déné of the great Mackenzie basin.

⁴⁶ "The Sicannies bury, while the Tâcullies burn, their dead" (Journal, 161).

⁴⁷ Monographie des Déné-Dinjië, p. XVI.

⁴⁸ Are the Carrier Sociology and Mythology Indigenous or Exotic? *Ubi suprâ*, 128.

⁴⁹ A Journey from Prince of Wales' Fort in Hudson's Bay to the Northern Ocean, 341; London, 1795.

⁵⁰ Les Bourgeois de la Cie du Nord-Ouest, 1: 88.

5th. As if to render more patent the wonderful power of imitation of that family, the western branch of the Nahanaïs⁵¹ cremated their dead, a practice unknown to the eastern part of the very same tribe.

6th. And this craze for copying was not the exclusive apanage of the Déné coterminous with the Coast tribes. The southernmost among the western divisions of that family, namely, the Chilcotin and the immediate neighbors of the Shushwap among the Carriers, had themselves shown that they could not resist the force of alien example by borrowing from the latter interment and winter residence in semi-subterranean hovels.

7th. A like innate propensity for imitating foreigners in their social life led the eastern Chipewyan and Beaver to discard their original double-shelter huts of coniferous boughs for the tipis of their southern neighbors, the Cree.

8th. On the other hand, "the lodges of the Kutchin Loucheux resemble the Eskimo snow huts in shape."⁵² Everyone knows that the habitat of Loucheux and Eskimo is coterminous.

9th. The Loucheux further borrowed the *parka*, which originated with their northern non Déné neighbors.

10th. According to Richardson, the former used also "the hose (or leggings) and shoes of the same piece, thus imitating the Eskimo boot."⁵³

11th. They likewise borrowed therefrom the regular sleigh with runners, which replaced with them the flat-bottomed thin board toboggan common to the other Déné.

12th. They furthermore imitated the Eskimo in making for themselves wooden snow-goggles.

13th. And what shall we say of that Déné tribe, the Sarcee, which allied itself to the Blackfeet and set to live in close proximity therewith? Those Indians have, through association, become perfect Blackfeet in every way save in language.

And lest any sceptic be tempted, despite what we have seen of their wonderful receptiveness, to imagine that it was the

⁵¹ The so-called Taltan.

⁵² Sir John Richardson in *Arctic Searching Expedition*, 1: 342.

⁵³ *Ibid.*, 2: 11.

foreigners, not the Déné, that borrowed, let me choose for further elucidation the chief point of Tsimshian sociology, potlatching, found also among Babine and Carriers, but unknown to all the other Déné tribes not coterminous with the maritime aborigines.

When, on the occasion of one of those feasts, a new nobleman was to be installed in the place of his predecessor, young Carriers holding up in a line the dressed skins he was going to distribute would cry out: "These he will give away as a fee for his enthronization." Whereupon the whole exogentile crowd would break out into loud acclamations: *Sæmâtqét! Sæmâtqét!* Now what is this word? A Carrier expression? Not by any means. It is the *Sæma'yit* of the Tsimshians said by Dr. Boas to be used by those Indians when they address the sun. It is the equivalent of "chief," or "chief by wealth."

After the new notable had made his grand distribution of skins, he would give the assembly a repast in trough-like carved vessels called *tsak*, a word which is evidently the same as the *tsèkh* whereby the Kitsan, or Skeena river Indians, designate a like vessel.

Then, to honor the new nobleman, the hereditary song of his predecessor was struck up and repeatedly executed by the assistants. What was that song? Merely a Tsimshian tune with badly pronounced Tsimshian words!

As to the Eskimo and Loucheux, among whom we have also seen several technological points possessed in common, the explorer, Sir John Richardson, explicitly states that "the Eskimos . . . have borrowed nothing whatever either from the Europeans or 'Tinnè, the conterminous people.'"⁵⁴

This, it seems, ought to suffice. Useless to waste time in an endeavor to break in an open door.

Reverting to Mr. McLeod's strictures, we are confronted with these novel pieces of information:

The greater part of the Sikanni, did not, as Morice implies, live east of the Carriers; they lived rather north of the Carriers. Nor were they all salmonless wanderers, as Morice states. Nor, as the same ethnologist will have it, were they dependent only on the Carriers for contact with the Coast civilization.⁵⁵

⁵⁴ Arctic Searching Expedition, 1: 342.

⁵⁵ AMER. ANTHR., 28: 367-68.

I might ask what this has to do with cremation, which was the subject of my communication to the *AMERICAN ANTHROPOLOGIST*. But let it pass. It may none the less appear strange that a person who has lived nineteen years in close contact with a native tribe, who repeatedly visited all of its chief haunts and knew personally most of its members, should now be taught by an outsider the real extent and situation of its habitat.

There are, of course, some Sékanais who are north of some Carriers. But, taken as an ethnological unit, the territory of the former is, I repeat, just east of the Stuart Lake Carriers, those I have always had in mind when I mentioned that tribe. "The greater part" of them live not only east of the Carriers, but east of the Rocky mountains, where lie their original haunts. Mr. McLeod is not quite up to date when he refers to Tolmie and Dawson's map⁵⁶; but I dare not suggest to him a look at my own, which appeared in the *Proceedings and Transactions of the Royal Society of Canada* for 1893, quite a few years after the issuing of the former, at a time when I had already put in a pretty long stage of travels and studies in the country.

I must maintain that, apart from a very few exceptions which confirm the rule, the Sékanais were "salmon-less wanderers," to whichever place they may have repaired for their trade. Nay, they were laughed at by Carriers and Babines for their aversion to fish—venison being their staple food in the same way as dried salmon was that of the two latter tribes. The only locality where a few of them could have procured and cured salmon was the old Fort Connolly, on Bear lake. But they did not avail themselves of their opportunity. Moreover, they were, at best, but flying visitors at that place, as indeed at all their other trading resorts.

As to the village north of Stuart lake which Harmon asserts was inhabited chiefly by Sicannies,⁵⁷ the reader will find it marked a Kœztce on my ethnological map. Its name among the whites is Grand-Rapide, and it is an unimportant *Carrier* locality without even a chief. I can furnish from memory the names of the few families settled there in the eighties. They were those of Mistimi,

⁵⁶ Cf. my Notes on the Western Dénés, 26.

⁵⁷ Journal, 179.

Robert, Austin, Stephen, Casimir, Sœsradu'as and Felix (Neh-woniyæl), all Carriers as far as I know. At any rate, Carrier was the language they always spoke. Only the two brothers Stephen and Casimir had Sékanais blood in their veins, their father being related to that tribe—perhaps a full Sékanais. But their mother Zeli was confessedly a pure Carrier, who even left that place for Fort St. James, on Stuart lake, when her daughter Annie became the wife of Taya, the head-chief of all the Carriers.

Harmon was certainly misinformed with regard to the Grand-Rapide village. In fact, the territory of the Carriers extended much farther north in the same valley.

McLeod says that "the only actual cremation by Sikanni which Harmon describes was the cremation of the body of a man" who "*may* have come from this village."⁵⁸ Harmon speaks nowhere in his Journal of cremation as having been practised by Sékanais Indians. He simply writes in the case mentioned by that gentleman:

On the 9th inst., a Sicanny died at this place [Fort St. James, capital of the Carriers], and the following circumstances attended his incineration.

The chances are that had he really belonged to Kœztce, his remains would have been sent up thither, or at least to Thatce (McLeod's Tachy), for disposal.

People of the two places are so intimately connected from an ethnographical standpoint that they are uniformly called *Tłaz-tenne*, or people of the "Fond du Lac," a further proof that those of the Grand-Rapide have always been Carriers and not Sékanais.

My adversary further finds an excuse for some humor at my expense in the fact that I had written of the two wives of the above mentioned Sékanais that they were Carrier women. He sees in this contention nothing but "a product of my imagination," and exhorts me to continue "this interesting, though imaginary, biographical study."⁵⁹ In fact, he seems so elated at his grand find that he immediately repeats himself in commencing his next paragraph. "The biography given by Morice," he adds, "bears internal evidence of having been imaginary."

⁵⁸ AMER. ANTHROPOL., 28: 568.

⁵⁹ Ibid., 569.

Though I fail to see a "biography" in the mere fixing of a woman's nationality, I will not be so cruel as to begrudge him that frail ground for satisfaction. To others I shall simply say this.

Because of the extreme simplicity of their mode of life, their absolute lack of culture and their strictly nomadic ways,⁶⁰ the Sékanais are looked down upon as unredeemed savages by the Carriers. Yet in some cases association with those despised neighbors could have for the latter advantages the prospect of which could open to them the ranks of Carrier society. Neglecting what I have myself written on the subject, one will gather from Harmon⁶¹ the fact that the whole western country was sharply divided into distinct hunting grounds, and will easily surmise how very valuable were to people who practised potlatching, with its attendant features of dressed skin, fur and food distributions, the plots on which such resources were found and on which nobody could legally encroach.

Now the Sékanais were exceedingly well provided in this respect and most of those among them who chose to better their social position by seeking the hand of a Carrier lassie were assured of success on that score—the brothers of his bride becoming by reason of such an alliance entitled to hunt on those grounds. This was the great, one may almost say the only, excuse for unions which would have otherwise been regarded in the light of *mésalliances*.

⁶⁰ It was the contention of Mr. Henry W. Henshaw, in one of the first volumes of this periodical (the seventh), that it is a fallacy to say that the Indians are nomadic. "The term nomadic," claims that writer, "is not, in fact, properly applicable to *any* Indian tribe" (105; the italics are mine). What is then to be nomadic? According to the Standard Dictionary, it is to have "no fixed abode." But there has never been among the Sékanais not only a single village, but even a single house. Their bands are continually on the move according to the migrations of the larger game on the flesh of which they chiefly subsist.

So inveterate are their roving habits and contempt for any "fixed abode" that they cannot stand the houses of the Carriers. Some of them would formerly congregate at Fort St. James on the occasion of some great Christian festival, and would have, of course, to accept of the hospitality of their Carrier friends. But after two or three days stay there, they would break loose from their unwelcome captivity, and build to themselves huts of boughs at the entrance of the forest.

⁶¹ P. 255.

I have myself seen, and been called upon to bless, a few of them. In every case, the *raison d'être* was the same: the privilege for the relatives of the Carrier girl to utilize the preserves of the bridegroom.

Now is it unreasonable to surmise that what was done in my time, and what I know to have happened before, must have taken place in the case mentioned by Harmon? It seems to me that logic, not imagination, will immediately suggest perfect parity between the two epochs. Analogy has still some sort of cogency when it is a question of reasoning and deducting.

Would Mr. McLeod "imagine" for a moment that the two widows of that Sékanais belonged to his own tribe? If so, he might tell me what those inveterate nomads (three perfect strangers) were doing in a village of sedentary Carriers. And would it not be a climax that would tax the good-will of the most credulous to "imagine" two Sékanais women acting as the voluntary slaves of their joint husband's relatives (what were these, too, doing in that strange place?) and daily packing, as mentioned by our trader-author, the relics of their late lord and master? For any one who knows the relative status of the two tribes it is preposterous to merely think of this.

One last observation before I close. My critic exultantly exclaims, and prints in italics lest we forget:

It was the relatives of the deceased who made use of cremating, and those relatives of the deceased were, like the deceased, Sikanni.⁶²

Ergo, he adds by way of a *tu quoque* sting: " 'Disastrous distraction' is certainly not peculiar to me."

I confess that I would be stunned by the blow were it not for a little particular which Mr. McLeod has forgotten, or never knew. A Sékanais marrying into the Carrier tribe had absolutely no standing in it, and could take part in no public feasting or ceremonial distributing, until he had adopted one of its gentes, different from that of his wife. This done, all the members of that gens, wherever they might be, as I wrote almost forty years ago,⁶³

⁶² AM. ANTHROP., 28: 569.

⁶³ "The clans or gentes outstepped the village limits" (The Western Dénés; their Manners and Customs, Proc. Can. Inst., 142; Toronto, 1890).

became the brothers and sisters of the quondam stranger. And this was no social fiction: the gentile ties were stronger among the aborigines than are with us the blood ties.⁶⁴ For having met with such cases, I know that a hitherto unknown individual who had passed his life hundreds of miles away was petted as a real brother as soon as he came into contact with people who belonged to the same gens as himself.

Is it difficult, after this, to see how Harmon's dead Sékanai may have been cremated by "relatives" who were in reality Carriers, his brothers, according to the law of the land, not according to the flesh? He should indeed be very little conversant with the contempt the Carriers professed for the "forest savages"⁶⁵ to "imagine" that the relatives of the two widows would have allowed any of those despised strangers to treat them as Harmon says they were treated.⁶⁶

Finally, despite McLeod's emphatic italics, I must be allowed to remind him that

it was [*not*] the relatives of the deceased who made use of cremating,

but exogentile neighbors. The funeral pile was

kindled in the outskirt of the village by men [*not*] belonging to the deceased's clan (who were paid on the spot by the latter's relatives),

as I wrote in 1889 (67), said relatives being then non-active bystanders whose role was confined to wailing and howling.

As a practical conclusion of the foregoing, I fancy that the following points may be regarded as well established: 1st. The anthropological data found in the fur traders' publications cannot always be relied on. 2nd. The Sékanais as a tribe did not practise cremation. 3rd. One must ever bear in mind the wonderful receptiveness of the Déné, which made them adopt the customs of

⁶⁴ Upon learning, while away among strangers, that his father had just died. "Well, let his people mourn him," said his son, a Carrier who thought he was no relation of his because he belonged to a different gens!

⁶⁵ "Stick Siwashes."

⁶⁶ "The men would seize them by the little remaining hair on their heads, and push them into the flames" (Journal, 181).

⁶⁷ The Western Dénés, Proceedings of the Cau. Gust., 7: 145.

their heterogeneous neighbors, without scarcely giving them anything in return (because they had nothing to give), and 4th, as to the various other questions raised by Mr. McLeod, I leave it to the reader to judge for himself.

200 AUSTIN STREET,
WINNIPEG, MANITOBA

POSTSCRIPT

The foregoing was written on the receipt of the July-September number of the *AMERICAN ANTHROPOLOGIST* for last year. Since that time, for several reasons one of which was to make doubly sure what to me did not allow of a particle of a doubt, I have revisited my former Indians and (not, I confess, without some little hesitation savoring of shame) I asked them whether the Sékanais did not formerly cremate their dead. The answer was a look evidently meant as an expostulation at my attempt to draw them into the discussion of a point too well known to be inquired about.

"What," they said, "after your long years of research among us when we were young, do you not know yet that the Sékanais never burned their dead, but hid them up in the branches of trees or on scaffolds, when they did not pull down on their remains the shelter in which they had breathed their last? Surely, our old men who now sleep in yonder graveyard must have told you that."

"But was not Kœztce a Sékaanis village?" I innocently insisted though quite sure of the contrary.

"A Sékanais village indeed!" they exclaimed with a scornful grimace, which I wish Mr. McLeod could have witnessed, "where did you ever see a Sékanais village? The Sékanais are like the beasts of the forest: they do not have a single house, let alone a village, and are always on the move. Yet, in former times, there occasionally were a few of them at that place, because this was to them like an outlet, a landing point whither they would repair from their eastern hunting grounds to trade their pelts, and especially their dressed skin, with us. A few did, in course of time, settle there and intermarried with our women; but, of course, Kœztce is and has ever been a Carrier village."

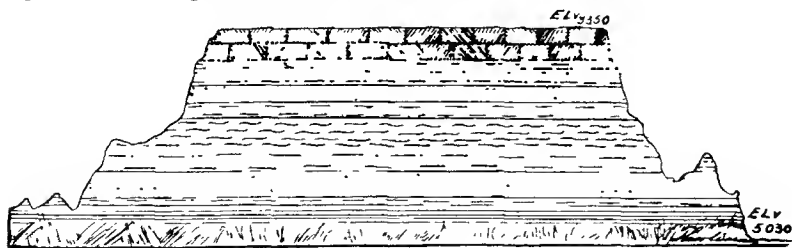
RIO PUERCO RUINS

By THOR WARNER

DURING midsummer of 1926 geological exploration carried on in central New Mexico brought me into Rio Puerco valley.

From the confluence of Rio Puerco and Rio Grande rivers the former traverses a region of aridity for at least one hundred miles and while tributary streams during the storm periods add a substantial portion to its water supply it contains but a scant amount of water throughout the year. The Atchison, Topeka and Santa Fe railroad crosses the Rio Puerco river near the east central line of Valencia county and it was in this general neighborhood that my reconnaissance work during the month of July, 1925, revealed geological information which resulted in an additional three months' study of the same region during 1926.

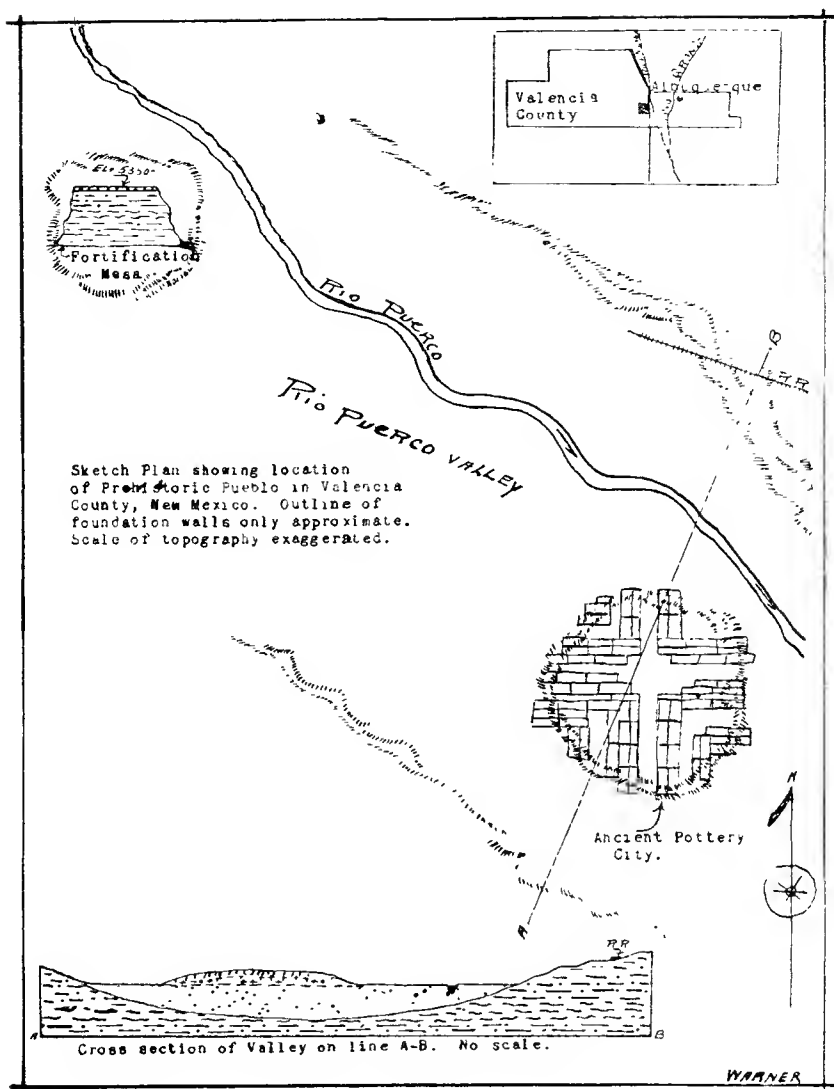
While my geological field work has primarily to do with the possibilities of natural resources of a commercial nature, I have yet taken keen interest in studying the evidences of primitive civilization unearthed by my own hands, and it is with the feeling of having glimpsed something of the mystery of a legendary time long veiled from the eager gaze of the scientist that prompts me to submit briefly some information on a discovery of what I consider to be an important addition to archaeological knowledge of North America.



Fortification Mesa on the banks of Rio Puerco.

FORTIFICATION MESA

In Section 36 Township 7 north Range 2 west, and one-half mile from Rio Puerco river channel, in the western and central



part of Valencia county, New Mexico, stands a lava-covered mesa that serves as a topographical marker and an outstanding fixture to the region in general. This butte or mesa, as it may rightfully be called, represents the remnant of a mantle of Tertiary shale and sandstone that once covered the region but in latter geological times has been eroded away and left only markers to

indicate its extent. Its base measures about one-half mile in diameter, while its table-top covers but 60 acres. It reaches a height of 320 feet above the valley and a fifty-foot cap of basaltic lava has preserved its existence from erosional forces.

The conspicuous position of this butte, together with the commanding view I knew it must afford of the general region I had under study, led me to undertake its ascent, and as no trail or road appeared in sight, it was a question of actual mountaineering to reach its summit.

When breast-high above the edge and top of this precipitous table land an amazing sight loomed up before me—over one hundred individual rooms appeared in several clusters around and near the center of the table. The walls of these individual rooms in some instances stood two feet high above ground and were built of flat lava slabs cemented together with a mixture of Coalitche and adobe.

A further examination of these walls proved them to be the foundations of what I interpret as an ancient Indian village, which at one time may have served as a watch tower or outpost for the tribes that once inhabited the region. The slight concave shape of the top of the mesa, with drainage outlet on the north-east side, enabled storms to sweep all movable material out and over the top, thereby disposing of remnants that might otherwise have served as a guide in reading and recording at least a portion of the history of the inhabitants of this prehistoric watch tower.

From the commanding position on top of this so-called fortification mesa, the Rio Puerco river in its zigzag course south-eastward soon disappeared from sight, but through my field glasses every configuration and topographic feature stood out plainly in the desert sand. The valley at this point is about two miles in width and for few spots of desert weeds it was indeed a desolate and barren terra firma.

POTTERY HILL

Five miles downstream I noticed a small but prominent appearing mound, arising near the river bank and being covered with a mantle of green desert grass produced an animating effect in the background. On nearing this isolated, low-lying hill, I caught



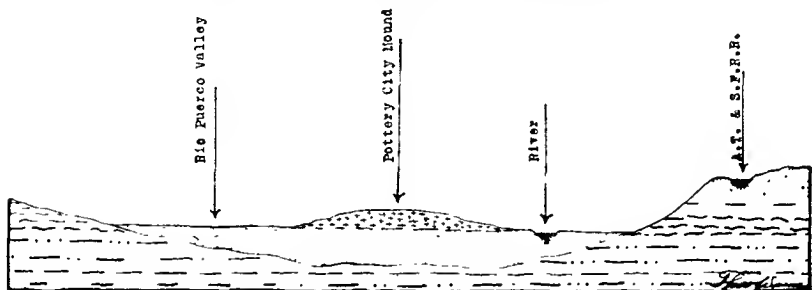
Author standing near the edge of mound, produced by the crumbling walls of an ancient pottery city inhabited by early Americans of probable pre-Columbian times.



Photo by author showing the main channel of Rio Puerco river and the southwestern bank, where the ruins of a once prosperous race of early Americans devoted their time to the manufacture of pottery for exchange purposes with other tribes, whose produce were of usefulness for the existence of these American pioneers.

sight of bits of broken pottery on every side, and arriving at this point which subsequently proved of greater interest than the place I had just left behind me, I found the mound to cover about 15 acres in extent and arising about ten feet above the valley floor. Its surface was almost completely covered with broken pottery, and at a first glance over the situation my attention was attracted to a faint streak in the surface soil, and with a slight kick with the heel of my boot, I found myself standing on top of an adobe wall fifteen inches wide and running at a right angle to the other one.

A hurried survey of the surface of this hill proved it to be a network of walls, from which it immediately became apparent

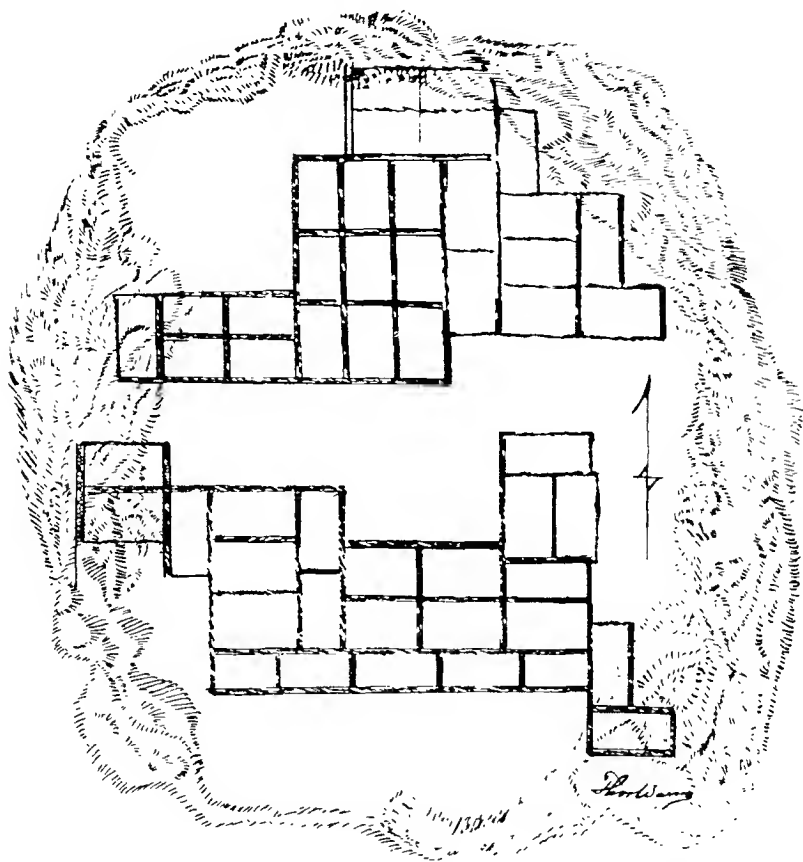


Cross section of Rio Puerco valley, showing mound near river which represents the fallen adobe walls of a once inhabited city

that this was once the seat of an ancient pottery site, of greater importance than the remnants at Fortification Mesa. Subsequent excavations by my own hands proved the adobe walls to be partitions and outside walls of what I have estimated to be about 500 individual rooms. They are of fairly uniform size and measure 6 by 10 feet. To date my deepest excavation does not exceed four feet, but it is likely that these surface-exposed walls are not the foundations of the dwelling itself, but probably the masonry in a second, or possibly third story community dwelling.

The reason for advancing such condition lies in the fact that the mound in itself is not one produced by nature, but is the accumulation of fallen and crumbling parts of the dwellings subsequent to inhabitation which have been banked up against the walls, wind-swept sand and soil having accumulated around these

remnants and in this manner produced a mound enveloping this former place of abode of ancient Americans. Another support of even greater value, is found at the river bank and about 1000 feet from the center of the mound and at an elevation in excess



Standing near the center of mound with scattered pottery bits around me, I noticed a faint outline of a network of foundations in the desert sand, that later proved to be the walls of an ancient city.

of ten feet below the top of the mound proper, where the bottom of a foundation wall is four feet beneath the surface, giving, therefore, at present a vertical height of the masonry of at least 14 feet. This does not take into consideration the raising of the valley through deposition during the last few centuries.

Ancient Indian dwellings, excavated elsewhere in North America, and particularly in this state, do not reveal such rooms to have a much greater height than five feet, and in view of this it is apparent that we may have here a pueblo of much greater importance and larger in extent than at first anticipated.

DISCOVERIES IN THE RUINS

My work to date has yielded, aside from abundance of pottery fragments, a part of one human skeleton, corncobs, turquoise beads, ornaments carved in soft rock, and a number of crudely shaped stone implements. The emblems and designs on the broken bits are indicative of no little art and skill, while many of the colors remain strong and clear—dark green, deep brown, red, pink, yellow and jet-black. The designs consist mainly of streamers and streaks, varying from finely drawn lines to bands of a quarter of an inch across.

The human skull and few bones were encountered in one of the rooms at a depth of a few inches below the surface. The remains do not show a state of fossilization and are of small stature but evidently of an adult, as a molar tooth indicates. The skull shows an indentation on the right side, and it is not improbable that death came either through accident or violence.

A hatful of charred corncobs was uncovered in one place. Some of these were quite fragile and all much smaller than present day product. Around and close to the edge of the mound, several small ant-hills are to be seen, and close examination of these yielded a dozen small turquoise and malachite beads, that under the microscope gave evidence of fine workmanship. Their size varied from 6 to 3 mm. The fact that these beads had been brought from subsurface soil might lead to the assumption that they had been transported by ants from human remains buried in the ruins with their gems and ornaments, as was the custom of early civilization.

Our efforts in research in archaeology and anthropology must obviously look forward to such places that have for centuries been hidden in the darkness of bygone days, and with the amount of evidence uncovered in the two places above referred to it is hoped

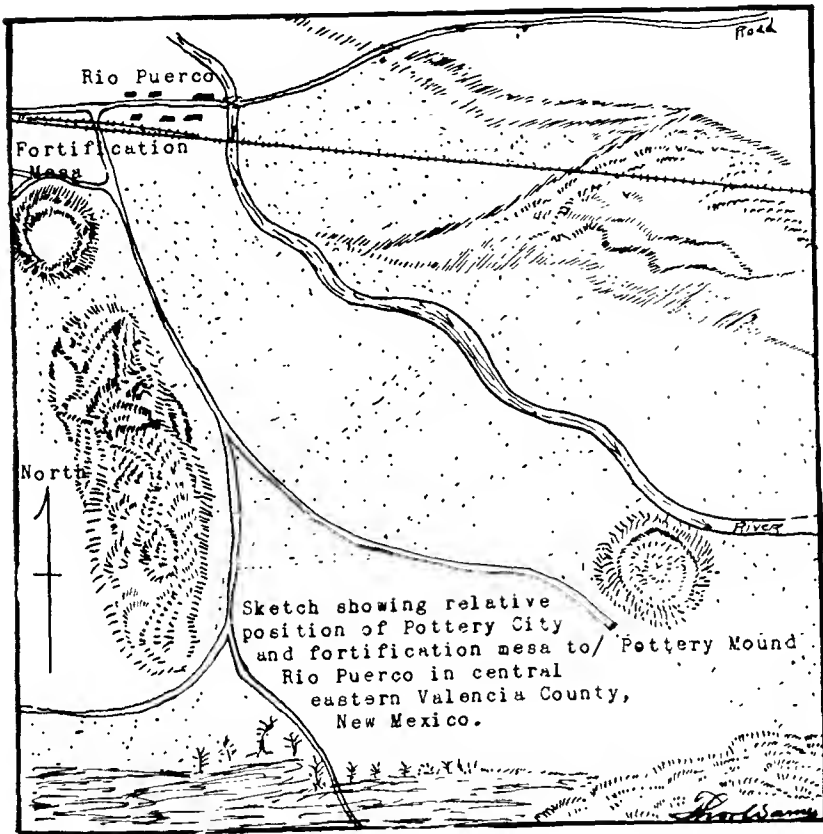


Standing near the center of mound I noticed a faint outline of a foundation-like streak in the desert sand. A slight kick with the heel of my boot proved this to be one of the adobe walls of the ancient site. Photo by author shows the water canteen lying in one corner, the kodak case in the other, and the long handled shovel indicating the approximate size of the individual rooms. Photo taken subsequent to partial excavation.



Few inches below the surface a human skeleton was found to lie crumpled up alongside the wall of one of the rooms. The photo taken by author shows the remains placed on black coat, with skull resting on "one foot ruler" and geologist hammer below.

that the publication of this information may find sufficient support to lead to some means for complete excavation of these ruins, and with this in mind the writer will gladly assist in such undertaking in order that further contributions may be made to the sum-total



of present-day knowledge concerning the culture of these pre-historic peoples who left ruins and remnants of a once widespread occupation in this territory, first penetrated by white man some four hundred years ago.

508 METROPOLITAN THEATRE BUILDING,
LOS ANGELES, CAL.

PROBABILITY AND THE DIFFUSION OF CULTURE TRAITS

BY WILSON D. WALLIS

THE scientist searches for objectivity and for methods which are useful in the hands of all workers. But the specific objectivity which he uses and the methods which he employs depend upon his point of view and upon his objective. The future of the old physics, or rather of that which has so recently gone by the board, was not long since said to lie in the fifth decimal place, but new conceptions and new hypotheses have brought into line new methods of investigation and interpretation. The objectivity, in a word, consists merely in adhering to a certain hard logic and this varies with the times. Anthropology has become more objective and has developed new methods; but every change in objectivity and in method has been in response to new points of view, and without the latter the former is useless. Nor is it likely that any rule of thumb will ever achieve much. A rule has value only in the hands of one who understands what he is about.

An article in the *AMERICAN ANTHROPOLOGIST* describes an objective method of determining special culture relationships.¹ The article begins with a discussion of special culture relationships but ends with inferences of culture contacts and the sequence of diffusion. The writers seem to be concerned mainly with the determination of diffusion, although they state that they are concerned with special culture relationships.

Their so-called objective method has in it some important presuppositions which are not to be disregarded merely because no mention is made of them, for the correctness of their method can not be established without first justifying these implicit assumptions. The objectivity, indeed, consists merely in applying a certain rule to certain presuppositions which they have not attempted to justify empirically.

¹ Forest E. Clements, Sara M. Schenck, and T. K. Brown: A New Objective Method for Showing Special Relationships. *The American Anthropologist*, 28: 585-604, Oct.-Dec., 1926.

The study referred to is concerned with six Polynesian groups, namely, the Marquesas, New Zealand, Hawaii, the Society islands, Samoa, and Tonga. The authors give a list of the culture traits found in each island group and show the distribution of the respective culture traits therein. For this purpose however they take only specific aspects of traits. "All traits either present or absent in all six of the island groups were disregarded."² Traits absent in all six of the groups must, of necessity it would seem, be disregarded; but the question arises as to the weight to be attached to common traits which have similar specific forms in two or more groups. Where the distribution is limited, is the presence of a generic trait, such as sacred houses, of more weight as an indication of distribution than is similarity in details when the sacred house is found in all groups? Probably this question cannot be answered categorically without taking into consideration both the nature of the generic trait and that of the specific trait. But probably a generic trait which is limited in distribution is better evidence of culture contact than is similarity in details of a widely distributed generic trait. Thus the possession of a radio is better evidence of culture contact between two areas than is a specific method of boxing the radio, or of mounting the wires, in regions in which the radio is a common element. In other words, it is less likely that two peoples would independently invent the radio than that two peoples having this instrument would mount or box it in similar fashion. But a similar observation may not apply to all traits. Thus it is more probable that a people will independently invent an explanation of the origin of the world than that the details of a cosmogony will be similar. Myth-making is a universal culture process, whereas radio-making has been limited to a single invention. Obviously therefore different principles must be applied to different types of culture traits.

In inferring the diffusion of culture we can not deal with each trait as the utilitarians proposed to deal in their hedonistic calculus with human beings, "each to count for one and not more than

² *Ib.*, 593.

one," for similarities are not of equal value as evidence of diffusion, and they must be weighted. Such a statistical survey must take into account, at least implicitly, the dynamic of change. It must consider the dynamic of change in the area from which the trait has gone and in that to which it has gone, or is presumed to have gone. Trait A for example spreads from area M to areas O and P. Subsequently to the spread A may become A¹, A² in M, it may become A³, A⁴ and A⁵ in O, it may become A², A⁴ and A⁵ in P. Here then A⁴ and A⁵ are in both O and P, while A² is the only specific form of the trait in M which is found also in either O or P. Yet the methods used by the authors referred to above would force the inference that areas O and P have closer relations with each other than M has with O or with P. This would imply that culture spread has been more general between O and P than between M and P or between M and O, whereas, by hypothesis, the general trait had spread from M to the other two areas and not from O to P or from P to O.

We do not allege that such posited diffusion is what normally happens, but before one can adopt the methods of the authors one must show that it does not normally happen, for the justification of their method involves the supposition that this does not happen in the majority of cases.

Only a detailed study of culture traits which have diffused would yield the necessary information on this point, and this implies a knowledge of the routes of travel.

In this connection we may consider the distribution of the practice of removing the skins of animals by inflation.³ The distribution shows that the custom has spread from French and Spanish contacts, being found in France about the middle of the sixteenth century, being practiced in Spain at the present time, and being found in the Spanish West Indies, among settlers in New Mexico and in Colorado (though apparently now in abeyance there), among the sheep-herders of Monterey county, California, and among the Malesite, Micmac, and Penobscot, the Micmac

³ Wilson D. Wallis, Removing the Skins of Animals by Inflation. *AMER. ANTHR.* 18: 597-601, 1916.

undoubtedly having acquired the custom from the French. The presence of the custom of removing the skins of animals by inflation is much better evidence of culture diffusion than is the occurrence of a specific method among those who have acquired it, since similarity in the latter is more likely independently developed than is similarity in the generic trait.

In order to test the authors' conclusions with regard to the probable culture diffusions within the six Polynesian groups we have accordingly dealt with their material by considering only those generic traits which are not found in all of the six groups of islands but which occur in two or more groups. Thus priesthood being found in all of them it is not included in this tabulation but human sacrifice is included since it is found in some of the groups but not in all of them; sacred houses are omitted, since they occur throughout the area, but organized instruction is included, since it is found in some groups but not in all of them. The inference is that organized instruction is less likely to occur independently in two groups than to take similar form in similar culture groups into which it had been introduced; the probability that priesthood, once it is distributed, will take similar specific forms independently in two or more similar culture groups is greater than the probability that ancestor worship will arise independently in such groups. That is, the presence of A in a limited number of groups having a similar culture pattern is stronger evidence of culture contacts between those two groups than is the presence of A² when A is present in all of the groups.

This principle of course needs statistical confirmation; but its incorrectness, which the authors take for granted, equally needs statistical confirmation. It is a case of pitting faith against faith, but the faiths may as well be brought out into the open and be properly labeled. In order to test the matter of culture contacts by the distribution of generic traits, therefore, we selected those generic traits given in the table of the authors which are found with limited distribution in the six groups. These are specified in Table I below.

TABLE I
DISTRIBUTION OF CULTURE TRAITS IN POLYNESIA
IMPLYING LIMITED DIFFUSION

No.	Trait	M.	N.Z.	H.	SOC. I.	S.	T.
24.	Stools.....	0	0	1	1	0	0
28.	Storehouse on posts.....	1	1	0	1	0	x
29.	Men's house on posts.....	1	0	1	0	0	0
30.	House decoration.....	1	1	0	0	0	0
60.	Tanged adze.....	1	1	1	1	1	0
74-80.	Pounders.....	1	1	1	1	0	0
81.	Pestles.....	0	1	1	1	0	0
82.	Sinkers.....	1	1	0	0	0	0
83-90.	Small figures.....	1	1	1	1	0	0
96.	Legged bowls.....	0	0	1	1	1	1
102.	Bludgeon.....	0	x	1	1	0	0
103.	Fijian type clubs.....	0	x	0	0	1	1
104-6.	Shark tooth implements.....	1	1	1	1	0	0
116-7.	Throwing cord.....	1	1	0	0	0	0
118.	Spear with detachable head.....	1	1	0	0	0	0
119-21.	Chiefs, stave.....	1	1	0	0	0	0
122-25.	Armor.....	0	1	1	1	1	0
138.	Nose flute.....	1	1	1	1	0	1
139-40.	Musical bow.....	1	0	1	x	0	0
141.	Jew's harp.....	1	0	1	x	0	0
146.	Stilts.....	1	1	1	1	0	0
147.	Surf boards.....	1	1	1	1	1	0
153.	Coasting.....	0	1	1	0	0	0
155.	Kites.....	1	1	1	1	0	0
156.	Draft game.....	0	1	1	0	0	0
179-80.	Braided hair.....	1	0	1	1	0	0
183-5.	Fly flap.....	0	0	1	1	1	1
193.	Inlay.....	0	1	1	1	0	1
197.	Painting.....	0	1	1	1	1	1
209.	Human figures.....	1	1	1	1	0	1
237.	Wall terrace and platform.....	1	0	1	1	1	1
238.	Cut stone.....	1	0	1	1	1	1
242.	Mummification.....	1	1	0	1	1	0
252-4.	Body kept until disintegration.....	1	1	1	1	1	0
255.	Bones put in sacred places.....	1	1	1	1	x	0
257.	Vaults.....	1	0	1	0	0	1
258.	Cannibalism.....	1	1	0	0	1	1
260.	Head-hunting.....	1	1	0	1	1	1
263.	Overlords.....	0	0	1	1	0	0
264.	Loose tribal confederacies.....	1	1	0	0	0	0
268.	Ancestor worship.....	1	1	1	1	0	0
269-70.	Worship of gods.....	0	1	1	1	1	0

No.	Trait	M.	N.Z.	H.	SOC. I.	S.	T.
275.	Human sacrifice...	1	1	1	1	0	0
281.	Organized instruction.....	1	1	0	0	0	0
TOTALS.....		31	31	32	29	14	12

The total number of correspondences for the various possible combinations of two subsidiary culture groups is given in Table II, in which comparison is made with the order of correspondences as found by the authors.

TABLE II
COMPARISON OF RESULTS BY THE TWO METHODS
OF SELECTING TRAITS

ISLANDS	Total number of correspondences by taking generic traits	Excess agreements or disagreements of traits considered in details (By the authors' method)
Samoa-Tonga	8	+148
Hawaii-Society	26	+ 69
Marquesas-New Zealand	24	+ 64
Society-Tonga	9	+ 58
Marquesas-Society	19	+ 40
Society-Samoa	12	+ 37
Marquesas-Hawaii	20	+ 3
Hawaii-Tonga	9	+ 1
New Zealand-Society	20	- 5
New Zealand-Hawaii	20	- 20
Hawaii-Samoa	10	- 24
Marquesas-Tonga	7	- 43
New Zealand-Samoa	9	- 46
Marquesas-Samoa	8	- 51
New Zealand-Tonga	6	- 55

As a further check upon the extent to which these correspondences may be taken to indicate specific relationships between the respective culture groups we may consider the percentage of generic traits of one group which are represented in the other respective groups. If, for example, a majority of the Marquesas generic traits which are found in limited distribution in other island groups are in Tonga, and if the majority of Tonga generic

culture traits which are also found elsewhere are in the Marquesas, this indicates that the culture diffusion from these two respective islands has been mainly from one to the other. If however the one does not check against the other, then no such induction can be made. Such an observation will not indicate the direction in which the culture traits have travelled but merely the areas which are related as source or recipient of common traits.

The percentage distribution yields the following:

TABLE III
PERCENTAGE OF TOTAL NUMBER OF GENERIC TRAITS OF LIMITED DISTRIBUTION FROM ONE ISLAND WHICH ARE FOUND IN ANOTHER

% of traits of	Which are found in	Traits in common	
Samoa-	Tonga	57	
Tonga	Samoa	67	8
Hawaii-	Society	90	
Society	Hawaii	81	26
Marquesas-	New Zealand	77	
New Zealand	Marquesas	77	24
Society-	Tonga	75	
Tonga	Society	31	9
Marquesas-	Society	66	
Society	Marquesas	61	19
Society-	Samoa	86	
Samoa	Society	41	12
Marquesas-	Hawaii	63	
Hawaii	Marquesas	65	20
Hawaii-	Tonga	75	
Tonga	Hawaii	28	9
New Zealand-	Society	69	
Society	New Zealand	65	20
New Zealand-	Hawaii	63	
Hawaii	New Zealand	65	20

Hawaii-Samoa	Samoa	71	
	Hawaii	31	10
Marquesas-Tonga	Tonga	58	
	Marquesas	23	7
New Zealand-Samoa	Samoa	64	
	New Zealand	29	9
Marquesas-Samoa	Samoa	57	
	Marquesas	26	8
New Zealand-Tonga	Tonga	50	
	New Zealand	19	6

When the majority of the traits found in one island are found also in the other, we may infer, so far as the evidence goes, special culture relations between these two islands.

Thus Table III shows that a majority of the specific traits of Samoa are in Tonga, and also that a majority of such Tonga traits are in Samoa. This relationship holds for the groups Hawaii-Society, Marquesas-New Zealand, Marquesas-Society, Marquesas-Hawaii, New Zealand-Society, New Zealand-Hawaii but not for other groupings.

Since the distribution of culture can be inferred only from the presence of traits and not from their absence, we propose to disregard the occurrence of absences and to treat the distribution of traits which are present in two and in less than six of the island groups. For this purpose we have taken all of the traits as listed in the table of 282 given by the authors. In some cases this may result in counting the trait twice, but as this is done by the authors in their account it will make the comparison all the more significant. Thus, for example, by our method, "cut stone present" is counted in each group in which it occurs, although this appears to be repeated in one or both of the groups which include "cut stone highly developed" and "cut stone rare." (At least, so we interpret the list.) The number of repetitions of this kind is however, as an examination of the authors' list will show, very small.

The results are given in Table IV. The totals in some cases depart slightly from those given by the authors, due perhaps to typographical errors, but the discrepancy is inconsequential.

TABLE IV
PERCENTAGE DISTRIBUTION OF TOTAL OF GENERIC AND SPECIFIC TRAITS

Islands	Traits in common	Total traits listed	Percentage of one found in the other	
Samoa-Tonga	46	82 60	Tonga Samoa	77 ⁴ 56
Hawaii-Society	78	136 127	Society Hawaii	61 57
Marquesas-New Zealand	91	158 135	New Zealand Marquesas	67 58
Society-Tonga	33	127 60	Tonga Society	55 26
Marquesas-Society	81	158 127	Society Marquesas	64 51
Society-Samoa	44	127 82	Samoa Society	54 34
Marquesas-Hawaii	80	158 136	Hawaii Marquesas	59 51
Hawaii-Tonga	26	136 60	Tonga Hawaii	43 19
New Zealand-Society	60	135 127	Society New Zealand	47 44
New Zealand-Hawaii	60	135 136	Hawaii New Zealand	44 44
Hawaii-Samoa	33	136 82	Samoa Hawaii	40 24
Marquesas-Tonga	25	158 60	Tonga Marquesas	42 16

⁴ That is, 77% of Tonga traits are found in Samoa, 56% of Samoa traits are found in Tonga, etc.

New Zealand-Samoa	25	135	Samoa	30
		82	New Zealand	19
Marquesas-Samoa	35	158	Samoa	43
		82	Marquesas	22
New Zealand-Tonga	13	135	Tonga	22
		60	New Zealand	10

Here as with Table III one may consider that special culture relationships maintain between two islands if the majority of the traits of each one are found also in the other. Thus a majority of the traits of one are found also in the other in the case of the groups Tonga-Samoa, Society-Hawaii, New Zealand-Marquesas, Society-Marquesas, Hawaii-Marquesas, but not in the case of the other groupings.

Certainly one can not infer the probability of diffusion by a formula based on the probability that correspondences are due to chance. Take for example the Arunta and the Dakota, as between whom, so at least we commonly assume, there has been no diffusion of culture traits. Yet in these two tribes—or in any two tribes—there are certain traits in common. There is for example punishment by relatives of offenses against a member of one's kin group; there is fighting; there are spears; there is music; there are raw-hide receptacles, mourning customs, earth burial after the corpse has had temporary aerial burial, and so on. The correspondences which are found are, to be sure, not due to chance, but the alternative is not, or is not merely, diffusion. Diffusion is not ruled in by ruling out chance.

If we take as indications of the degree of special culture relationship the number of correspondences in generic traits, as shown in Table II, and the percentage of traits of one island which are found in another, as shown in Tables III and IV, we can compare the results secured by these respective methods. We may take as a measure of relationship as shown by Tables III and IV the lesser percentage of the two islands which are considered as a group. Thus in Table IV a closer relationship is implied in the group Society-Hawaii than in the group Tonga-Samoa, since the

minimum percentage in the former (57) is higher than that of the latter (56). The statistical significance of this, of course, depends upon the amount of the difference, the number of traits listed, and so on, but such limitations apply throughout, for in most instances the numbers are too small to have much statistical significance. We are here concerned with method and are not suggesting that the apparent conclusions have any historical or inferential value.

A bracket indicates the same value for all units included within it, so that the order within the bracket has no significance.

ORDER OF HIGHEST RELATIONSHIP AS SHOWN BY TABLES II, III, AND IV

TABLE II		TABLE III		TABLE IV	
Hawaii-Society	26	Hawaii-Society	81	Marquesas-New Zealand	58
Marquesas-New Zealand	24	Marquesas-New Zealand	77	Hawaii-Society	57
Marquesas-Hawaii	20	New Zealand-Society	65	Samoa-Tonga	56
New Zealand Society	20	Marquesas-Hawaii	63	Marquesas-Society	51
New Zealand Hawaii	20	New Zealand Hawaii	63	Marquesas-Hawaii	51

Thus Hawaii-Society is given first place in the order of relationship as indicated by two of the tests, and second place as indicated by the third test (Table IV); Marquesas-New Zealand is second in order of relationship in two of the tables and first in Table IV, Marquesas-Hawaii appearing after second place in one of the Tables and after third place in two of the Tables, none of the other appearing more than twice in the three series of the five which show the greatest degree of relationship. Samoa-Tonga, which rates first place in the authors' Table II and third in our Table IV occurs but once in these three series.

Listing the groups in the order in which they show the least amount of relationship, the results are the following:

ORDER OF LEAST RELATIONSHIP AS SHOWN BY TABLES II, III, AND IV

TABLE II		TABLE III		TABLE IV	
New Zealand-Tonga	6	New Zealand-Tonga	19	New Zealand-Tonga	10
Marquesas-Tonga	7	Marquesas-Tonga	23	Marquesas-Tonga	16
Marquesas-Samoa	8	Marquesas-Samoa	26	New Zealand-Samoa	19
Samoa-Tonga	8	Hawaii-Tonga	28	Hawaii-Tonga	19

Thus the three tables agree in indicating that the least degree of relationship is in the group New Zealand-Tonga, and this is also the finding of the authors; next in order of slight degree of relationship comes Marquesas-Tonga, which is second place in all of the tables. Hawaii-Tonga and Marquesas-Samoa are the only other groups which occur twice in the three series.

One must question the validity of a method of inferring relationship which is based on no other evidence than that of lack of relationship. For each absence of relationship with regard to a specific trait the authors score one; then they add these ones; the sum of the zeros of relationship gives relationship! Thus we are told on page 603 that, "The high degree of special relationship between Samoa and Tonga is due to absences. That is, of the 282 traits considered here, so many were absent in both Samoa and Tonga that the relationship between them is over-emphasized by the figures. Their relationship consists in a common *lack* of many traits found in the other groups. However, this does not affect our interpretation of the results because it shows even more clearly than in the other cases that Samoa-Tonga is a separate entity and makes it stand out more definitely than before as a primary area."⁵ But if New York City stands out along with a Hopi Pueblo in lacking traits which are found among the Eskimo that fact certainly does not indicate either that the former two

⁵ *Op. cit.* Italics in the original.

culture areas are primary or that they are related. And so of two subdivisions of any culture area. Groups are not related by virtue of having little in common. The "specific Samoa-Tongan elements" of which the authors speak (on page 604) are by their own showing mainly the absence of elements, and both their method and ours indicate little relationship between Samoa and Tonga. The authors conclude with the statement of their belief that their method is practicable and has objectivity. It is certainly practicable, in the sense that this numerical system can be worked as they worked it; but the only objectivity consists in using numbers as a quantitative statement of the results which follow from their method of analyzing culture and inferring contacts. A similar observation is eminently applicable to the classic attempt of Tylor, to which they make reference in the beginning of their paper. For while Tylor showed adhesions, he could gather from the statistics themselves no inkling of the direction in which change had taken place; nor could he properly weight his units without a knowledge of the extent to which diffusion had taken place.⁶

UNIVERSITY OF MINNESOTA,
MINNEAPOLIS, MINNESOTA.

⁶ For criticisms on the original draft of this paper the writer is indebted to Professor Bruce D. Mudgett of the University of Minnesota, and to Prof. William F. Ogburn of the University of Chicago.

“JUMPING OVER” FROM WEST AFRICA TO SOUTH AMERICA

By W. C. MACLEOD

SOME years ago in casual reading of war practices of the peoples of western and central Africa I noted the peculiar custom by which warriors were enjoined to step over their wives outstretched legs before breaking the continence imposed upon them during the duration of a war party. Such stepping over was considered equivalent to intercourse. I have not followed up the data in Africa as this subject is somewhat apart from my special interests.¹ In the course of studies in primitive economic and political evolution in the Americas, however, I have had occasion to my surprise to note a similar importance of “jumping over” or “stepping over” as a ceremonial variously rationalized and linked with various ceremonial complexes. Finding the same trait in both Africa and America I was led to the presumption that there was a genetic relationship; an example of diffusion, and that the trait must have existed in Eurasia. In the same casual way that these American notes have fallen to hand I have just been told by some acquaintances that in childhood they were acquainted with what appears to be the negative or taboo aspect of the same ceremonial trait. This I shall discuss in conclusion.² Here we shall present the American data.

Jones writes of the Kutchin of the interior of Alaska, concerning the dance preliminary to the leaving of a war party, that this war dance is:

a dance similar to the one for the dead; *but* at the end of it, the men get into line on one side and the women on the other; the men then run at the women, the latter lie down, the men jump over them, and the man who falls will be killed in the fight.³

¹ I have not my African notes at hand. As I recall it the trait is prominent in the Baganda war customs as described in J. Roscoe, *The Baganda*.

² Data from M. Foley, of Irish extraction, and H. Grossman, of Jewish extraction, checked by their grandparents from Europe.

³ Jones: *Kutchin*, p. 326.

Teit writes of the mortuary customs of the Thompson River Indians of the British Columbia plateau that:

Children whose mother had died, were made to jump four times over the mother's corpse. If they were too young to jump, they were lifted by their friends four times over the corpse, *or* were made to walk four times past the feet.⁴

Morice, referring in part to Petitot's collection of Déné tales, notes this trait as it appears in the mythology of not only the Kutchin but of the Carriers and other northern Athabaskan of the plateau north of the Thompson River Indians; he remarks that a

point of the native theogony worth noticing is the supposed efficacy of the act of jumping across a subject. Thus, the Child of our tradition, jumps across the corpse of his metempsychosed father-in-law, who thereby recovers life. So he does, later on, with regards to the bones of his brother. We find that the Kutchin or Loucheux of the Mac Kenzie River, in common with the Hare Indians, have a periodical festival . . . on the occasion of which the death chant is sung, thus: 'O mouse with the pointed nose hasten to jump twice across the face of the earth.'⁵

For the neighboring coastal Kwakiutl it is noted that it is bad luck for *young* persons to step over a seal hunter's paddle. There is some connection between this fact and the fact that young women are in the menstruating period while young men, "who never do right," may be suspected of having made themselves impure by breaking sexual taboos.⁶

(So, in Tonga island, Polynesia, it is tabu for anyone to step over a fishing net in process of manufacture; and for a woman to step over green shoots of a sprouting yam.⁷)

Of the Hupa of northwestern California we read, concerning mortuary customs:

If the deceased was a husband, the widow might step between his legs and thus release herself from her marriage vow. Otherwise she was bound for life, and infidelity to the dead would bring ill-luck.⁸

⁴ Teit: Thompsons, p. 332. Italics above are mine.

⁵ Morice: Myths, p. 16; with reference to his Carrier myths and to the Kutchin and Hare customs noted in Petitot, *Traditions Indiens*, pp. 62, 186. The mouse with pointed nose is, in French,—*muscraigne*.

⁶ Boas and Hunt: *Kwakiutl*, p. 608.

⁷ Collocott: *Tonga*, p. 428.

⁸ Goddard: *Hupa*, p. 70.

This is remarkably reminiscent of the Ojibwa of the Great Lakes

Sometimes a brother of the deceased takes the widow for his wife at the grave of her husband, which is done by a ceremony of *walking her over it*. And this he has a right to do, and when this is done, she is not required to go into mourning, or, if she chooses, she has a right *to go to him*, and he is *bound* to support her."⁹

Of the Winnebago neighbors of the Ojibwa we have a description of the final lowering of a casket into the grave at a funeral at which time a formal, ritualized speech is made by the proper person in which he says at one place:

but nothing was taught me to say at the place where we are now, except that we should step over the grave just as our forefathers did when they originated. They were holy and they entered this life on a perfect day as this one is today, and, inasmuch as they were holy, all the ground that they touched was holy, and therefore we should step over the grave.¹⁰

Then everyone stepped over the grave into which the coffin had just been lowered.

For the Delaware Heckewelder describes the funeral of the famous chief Shingass. In time the coffin was lowered into the grave and the funeral proper is over.

Then the husband of the deceased advanced with a very slow pace, and when he came to the grave, walked over it on these poles. . . .¹¹

In 1671 the explorer Needham was among the Indians of the Virginia Piedmont; while among a tribe who were probably a branch of the Yuchi, he was killed by an Occaneechi (Sioux), by stabbing; the killing was done openly; the killer then

drew out his knife, stepped across the corpse of Mr. Needham, ripped open his body, drew out his heart, held it up in his hand, and turned to the eastward toward the English plantations, and said he valued not all the English.¹²

For a South American group we have the somewhat more satisfactory notes of Roth on the tribes of the Guianas,—from

⁹ McKenny *Tour*, 1827, p. 292, cited in Yarrow, p. 185. Italics in the original.

¹⁰ Radin: *Winnebago*, p. 441.

¹¹ Heckewelder, 1818, p. 268. There were two four-inch poles laid across the grave. After stepping over, the widower went away into solitude for an hour while all others prepared for a sort of mortuary potlatch.

¹² Alvord and Bidgood, p. 217. This work of Alvord and Bidgood is a compilation of early journeys such as Needham and Arthur's, Lederer's, etc.

various sources which are carefully recorded. The celebration of the anniversary of a chief's death by the Guahibo of the Vichada river is described. The widow of the chief brings the bag with his bones and property to be ceremoniously released from mourning for the future.

During the course of the evening a big fire was made, and all dancing up to it, the medicine-man jumped over, at the same time blowing into it with full force, the others, men and women then following his example. They blew in the direction of the country occupied by their terrible neighbors, the Piraroa, who bring death into their midst by spells over them.

At a Makusi burial, the relatives of the deceased bury the corpse; then they wail and scream; they next

surrounded the grave, and each one jumped over it in the direction whence he had come. Even the barely twelve week old orphan was taken in arms and made to jump over it.¹³

Concerning the Arawaks of the Guianas Roth notes that it is a serious affront to step over a person who is lying down; and, the recumbent person would rightly say, "You can cross me when I am dead. I am not dead yet!"¹⁴

Both the Irish and the Russian Jewish data I referred to include only injunctions *against* jumping over. It is forbidden ever to step over a grave; or to step over a child on the floor. To do the latter would prevent the child from growing, or the child would grow up a weakling. If anyone did step over, it is necessary to require them to counteract this evil by reversing the process and stepping back again. The Irish consider it an evil to step over the legs of a person kneeling in the pew at communion in church; also "since God is in a person who is returning from communion at the altar rail," it is considered insulting to God for this person to have to climb over persons to resume a seat in the pew.

For both the Old and the New World there are undoubtedly far more data available, especially perhaps in myths. Field investigation will perhaps also still be possible. Eventually the

¹³ Roth: *Guiana*, pp. 656 (from Crevaux), 662.

¹⁴ Roth: *Animism*, p. 271.

history of this ceremonial trait may be worked out. I would suggest comparing its distribution with another trait widespread in the Old World and in the Americas,—that of sunwise and counter-sunwise movement.

Incidentally, it may appear that our Mother-Goose tale of the cow jumping over the moon may be related to the Kutchin mouse who was to jump twice over the earth.

Finally, if the trait can be found among the Patagonians, the Bushmen, and the Australians, we may have hit on another "paleolithic" religious concept.

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UNIVERSITY OF PENNSYLVANIA

THE CULTURAL POSITION OF THE COAST YUKI

By EDWARD WINSLOW GIFFORD

THE Coast Yuki constitute one of the four linguistic divisions of the Yukian linguistic family. They dwell in a narrow strip of mountainous territory fronting on the Pacific ocean, in Mendocino county, California. Their neighbors to the south are the Northern Pomo, to the east the Yukian Huchnom and Athabascan Kato, and to the north the Athabascan Sinkyone. Most of the published data concerning the Coast Yuki are embodied in a few pages of A. L. Kroeber's *Handbook of the Indians of California*.¹

There are but three aged Coast Yuki left: Tony Bell, about eighty years of age, residing at Laytonville; his sister, Mrs. Mary Standley, about eighty-five years of age, residing at Sherwood; and Tom Bell, about seventy years of age, residing at Bear Harbor. Most of my data were derived in 1926 from Tony Bell, a little from Mary Standley, and none from Tom Bell. The information was recorded for the University of California Department of Anthropology. Tony and Mary are the offspring of a Coast Yuki woman of Alviso, or Juan, Creek (between Westport and Rockport) and of a Sinkyone man of Usal.

My informants were familiar with the narrow northern part of Coast Yuki territory and not with the southern broader section which occupies the lower Ten-mile River drainage. The portion of the Coast Yuki habitat specifically covered by this paper is perhaps ten miles wide, its western border being the ocean, its eastern the west bank of the South Fork of the Eel river. Between the ocean and the river is a mountain ridge two thousand feet high, which Kroeber makes the border, but which according to Tony Bell was not the border. West of the ridge the country is provided with a number of short creeks flowing westward to the ocean. The tanbark oak (*Lithocarpus densiflora*) is the only oak in Coast Yuki territory, so that the acorn supply was deficient as compared with much of central California.

¹ Bureau of American Ethnology, Bulletin 78, 211-216, 1925.

I went to the Coast Yuki expecting to find a very primitive phase of central Californian culture, because of the peripheral and mountainous region they inhabit. In this I was not disappointed, for they lack the religious, social, and material refinements of many of the central Californians. I found however a number of distinctive features of northwestern Californian culture, which I regard as relatively recent intrusions. In short, the cultural situation of the Coast Yuki would appear to be this. Their backward position, so far as central California is concerned, appears to be due primarily to their remote geographic position, secondarily to hostility of groups to the east of them, notably the Wailaki and Yuki. Even at times northerly Coast Yuki were involved in quarrels with their kinsmen on Ten-mile river. To the north their relations were friendly with their Sinkyone neighbors, as they were with their Kato neighbors to the east. With the Sinkyone there was considerable intermarriage. This is no doubt the channel through which flowed the observed northwestern traits.

As to the primitiveness of the Coast Yuki compared, say, with the Clear Lake Pomo, a number of poorly developed and negative features are indicative. There were no permanent settlements. Each little group of kinsmen inhabited a mountain ridge running east and west and abutting on the ocean. At springs on this ridge and at the stream mouths were camp sites. The local group moved from place to place as the various foods became available. The simple bow of hazel wood, narrow and thick in cross section, was the only one made, though the sinew-backed yew bow was known from neighbors. This statement contradicts Kroeber's information.² However, it comes from but one informant. Cross-questioning could not shake his testimony, and moreover he insisted that yew did not grow in Coast Yuki territory. Stone-boiling, cooking in ashes, and in or over coals were the only methods. The earth oven of central California was not known. Twined and coiled baskets were made, but the refinements and aesthetic features of Pomo baskets seem not to have been attempted. The only type

² Handbook, p. 214.

of shell bead manufactured was most primitive. It consisted of a whole *Olivella biplicata* with the tip of the spire knocked off or ground off. This type of bead may be a by-product of the custom of eating the meat of this mollusk. Two days of excavation in an extensive kitchen midden about three miles south of Westport revealed only this type of bead. The informant said that neither dentalia nor disk beads were used. Feathers were not employed for dance regalia; in fact, there seems to have been no cult, the widespread god-impersonating cult of central California being absent. No boats or balsas were used. Swimming was resorted to in visiting outlying rocks in the ocean. Storage of dried foods was largely in pits.

Other negative traits which indicate primitiveness as compared with other central Californian groups are the *absence of* the mocasin, the rabbit-skin blanket, the hair net, the bullroarer, dice, the metate and muller, the packstrap for deer (which were carried on the shoulders without this mechanical aid), acorn storage baskets (hollow trees or hut tops were used), dance regalia of any sort, hafted stone knife (a string-wrapped grip instead), marking of yellowjacket bait in order to find nest, use of salt (but much seaweed eaten), clam digging (but abalone stick used), bird bone whistle (but elderberry flute used), bear shamans and impersonators (but belief that bears live like people), sibs and totems. Sharp flakes of rock, knocked off for the occasion were used in hacking off and shaping rhododendron branches for digging and for abalone sticks.

In culture the Coast Yuki probably most closely resemble their linguistic relatives, the Yuki. Like them they have the institution of the "school," a several months' confinement of young men for the teaching of tribal lore and in some cases shamanistic practices. It is not the purpose of this brief notice to dwell upon the resemblances in detail. The purpose of the paper is to show why the Coast Yuki are adjudged primitive in relation to central California, and how that primitiveness has been overlaid by certain northwestern Californian traits.

Traits derived from the northwestern Californian culture are the extensive use of iris fiber for cordage, the use of an artificial

thumb nail of mussel shell for separating the fiber from the leaf, the making of carved elkhorn spoons for a corn mush and the limiting of their use to men; the use of harpoons for sealions (the harpoons, however, were imported from the north and were rare); the use of a bone dagger; the extensive use of the elkhorn wedge and chisel in cutting down trees; no speech addressed to dogs lest they reply; and the closing of the eyes and mouth of slain deer.

That none of these traits are to be found among other central Californians I would not state, but on the whole they are distinctive of northwestern California and such a cluster of them among the Coast Yuki appears significant of recent influence from that direction. These northwestern traits are among the specialties of that culture, while many central traits are either absent or appear in primitive and undeveloped forms among the Coast Yuki, compared with their manifestations elsewhere in California. These facts lead to the conclusion that the Coast Yuki manifest a very simple and ancient form of central Californian culture, over which have been imposed certain traits from northwestern California. Northwestern traits notable for their absence, however, are the characteristic New Year cult, the stratified society of northwestern California, and the extensive use of redwood for houses and boats. The sparseness of the northwestern traits, together with their specialized character, suggests that their diffusion has been recent and superficial. It must be remembered that the Coast Yuki lie one hundred and fifty miles south of the Klamath river the focal center of northwestern Californian culture. This very fact, contrasted with their proximity to the highly cultured Pomo of central California, makes it evident that some restraining influence has prevented the absorption of the superior features of Pomo culture.

UNIVERSITY OF CALIFORNIA,
BERKELEY, CALIFORNIA

THE EARLY GEOMETRIC PATTERNED CHILKAT

By MARY LOIS KISSELL

LOCATING a few old unidentified ceremonial robes as Chilkat, is the result of intensive research on north Pacific coast blankets by the writer for the Bureau of American Ethnology. Fundamentally unlike the Chilkat blanket-robe overspread with animal ornament is an older Chilkat with geometric design, closely relating it to its sister industry,—basketry.

Two examples are known: one obtained by Captain Swift about 1800, now in Peabody Museum, Harvard University¹ (fig. 1); the second secured by early Russian explorers, now in the

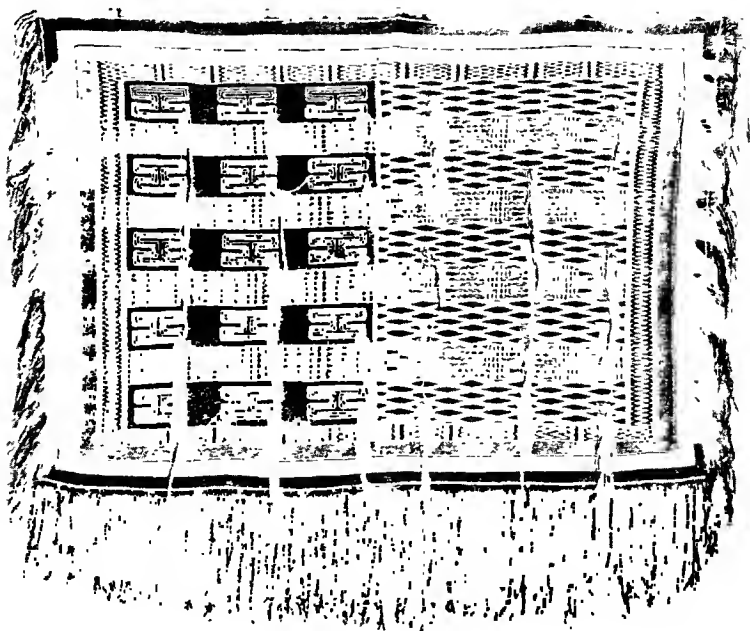


FIG. 1

¹ Willoughby, C. C. A new type of ceremonial blanket, *AMER. ANTHR.*, 1910.

National Museum, Copenhagen, where Professor Boas found it on a recent European visit. Half a dozen features differentiate it from the later type with animal pattern, which we have long known is a Tsimshian web that later was taken over by the Chilkat-Tlingit, hence the name.

The distinguishing features here are a rectangular shape without dipping curve below; integral fringes; purely goat-wool warp; and its old coast pattern weave. But most striking is its geometric ornament dispersed on primary and secondary stripes, with the principal ones carrying designs accented by tassels. Reports of such tufted and frogged garments come from two localities. Vancouver's men in 1794 found a chief thus dressed on Lynn Canal;² while Lisiansky in 1805 saw several Indians wearing them at Sitka.³

Tlingit weavers show nice discrimination in choosing from the many twine and wrap⁴ technics those best suited to definite design and texture effects in various parts of the robe. But their great patterning means is *latticed wrap weave*. This employs two different colored weft strands: a passive one latticed back of the warp; and an active one that binds them together. In laying in the design the weft strands exchange places wherever the design calls for a change in color.

A third web in the Ottawa Museum, Canada,—a ceremonial tunic remodeled from part of a Chilkat robe—is similar to the early garment of these Indians in many particulars, but varies in decorative style and plan, as well as in weave. (fig. 2). Animal medallions in rows are dispersed on a ground with geometric design like that on secondary stripes of the Peabody and Copenhagen webs; while the tassel again appears, two of which once hung from each medallion as bits of yarn ends and broken spots testify. Here it accents the important medallion animal, which presumably is a totemic crest, probably the "killer-whale" motif.

The carry-over of the traditional tassel to mark the crest

² Vancouver, G. *Voyage of Discovery to North Pacific Ocean*, 3; 250.

³ Lisiansky, U. *Voyage*, 238.

⁴ Kissell, M. L. *Basketry Technics*. *American Museum, Anthropological Papers* 17; 263.

figure, incites one to read backward and ask, Does this pendant member serve a similar function on the early Chilkat? Are the tasseled designs that enrich the dominant stripes geometric crests serving to prevent the significant totem from being lost in the rich decoration? Diverse weave and design treatment join in singling out these particular figures.

Furthermore, the Ottawa garment utilizes the Tlingit embellishing technic—*latticed wrap weave*—for its geometric ground ornament; and that of the Tsimshian—*tapestry twilled twine weave*—for the animal medallion ornament. The tapestry twine

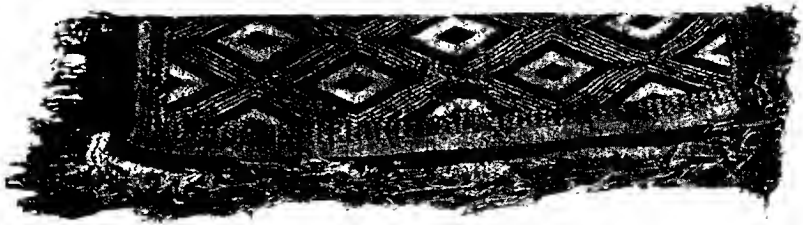


FIG. 2

idea was developed by the Tsimshian in response to the desire to represent the animal totem and is a unique technic in aboriginal industry. It carries the weft back and forth over short spaces as the design requires. This is impossible with a weft that moves across the width of the loom, as in the Tlingit pattern weave. Here the technic is *twilled twine* with two active twining weft strands.⁵

This union of Tsimshian animal ornament and Tlingit geometric ornament, as well as the embellishing weaves of both peoples, suggests that the Ottawa garment is a transitional type between the early and late Tlingit types, before these Indians took over the Tsimshian style of robe.

A fourth robe in the British Museum (fig. 3), probably col-

⁵ Kissell, M. L. *Yarn and Cloth Making*, 114-116; eadem, *Basketry Technics*. American Museum, Anthropological Papers, 17; 263.

lected by Vancouver when charting the New Norfolk coast between Prince Frederick Sound and Lynn Canal in 1794, is a Tlingit with all-over geometric design. But from which tribe of this people it came is uncertain; a number of factors point to one farther south than the Chilkat; and if not, it is probably older than the Peabody or Copenhagen robes. An interesting peculiarity of early Tlingit weaving is a slender band of the jewel color—yellow—crossing the width of the web and ending in the

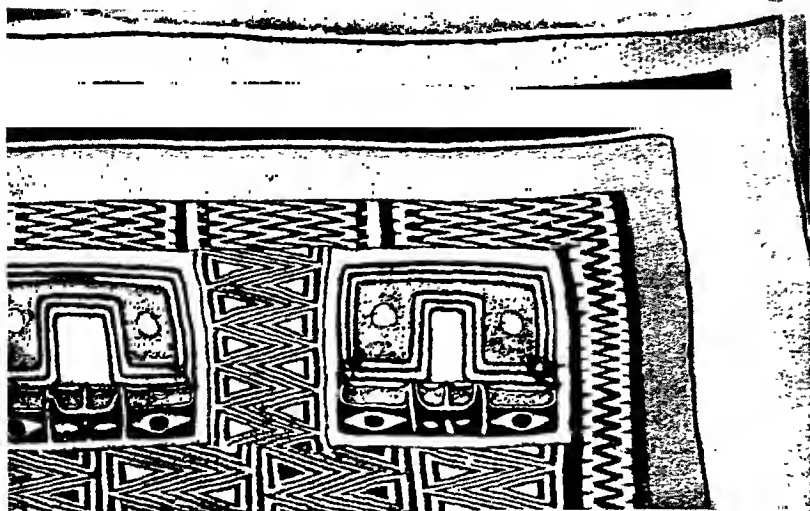


FIG. 3

side fringes. It has also been found among the Bella Coola. On the Vancouver garment it crosses the center of the main motif; while on tasseled ones it takes a minor place in the decoration. Is it possible that this is an older manner of indicating the principal or crest (?) figure, which lost its importance when the tassel came into style? and that the Vancouver web was woven prior to the use of the tassel?

We have had an excellent monograph on late Tlingit weaving;⁶ but next to nothing is known of that of the important early Tlingit. Even fifty years ago valuable information from the field

⁶ Emmons, G. T. *The Chilkat Blanket*. *American Mus. Mem.* 3; 329-400.

might have been gathered by one versed in textile research. Weaving has lost out in its contribution to ethnology by being left to the general ethnologist, who often mistakes technics and does not know their importance in relation to pattern. Ways of handling design and qualities derived from such have much scientific information to contribute. However, the time is not far distant when the need will be recognized for trained textile research.

523 W. 121 STREET,
NEW YORK CITY

TWO ALEUT TALES

RECORDED BY REV. T. I. LAVRISCHEFF

THE UNFAITHFUL HUSBAND

AT EEKAKHLEE¹ lived an old man with his wife. They existed comfortably, but the old man did not love his spouse and hoped to desert her. As he was a shaman, or sorcerer, it was easy for him to go into a trance and appear as dead. His wife buried him, according to custom, in a cave on a mountain, and his bows, arrows, clothing and bidarkas were laid beside him in a cavern.

For three days the disconsolate widow came to the cave to weep and wail. When she came on the fourth day she did not find the body nor the bidarkas and clothing. Stupefied she stood there puzzled by the disappearance of the corpse. Search for traces of it were fruitless and her grief increased. But a little bird on a tree sang to her:

“Cheer up, cheer up.

“Far beyond the Kiliagat the old man lives.

“Far more than before, he enjoys his life.

“Cheer up, cheer up.”

At first the woman paid no attention to the bird and went to her house. On the next day she renewed her search, but the bird again sang the same song. The old woman asked it, “Where is my husband?” At this the feathered creature chirped:

“On the top of the mount,

Near the peaceful bay,

The old man lives quietly there.

He does not love thee,

He will not come back;

Two nice girls entertain him there.”

Still skeptical the old woman replied, “If you tell me the truth, take flight to the place where he lives.” Thereupon the bird set out, with the woman following silently.

¹ Eekakhlee was the name given in the old days to present Johnstone Point on Hinchinbrook island, and the mountains between there and Nutchek were called Keeliagat.

It was a long journey across the forest, through brush and over mountains, but from time to time the bird rested, permitting the old woman to catch up with it. Finally they came to the top of a hill near the bay at Nutchek. From this spot the wife saw her husband in a bidarka far out to sea. Just below her on a sandy beach she espied two attractive girls. Quietly descending, the old woman stopped behind a tree to observe them. The girls were cooking soup and when it was ready she stepped out.

"Hello, girls," the wife exclaimed, "I see you have prepared your soup in the right way. Now I will show you best how to drink it." With this she seized the pan and turned it over the heads of the girls.

"That is the way the old man used to eat his soup in our birth-place," she gloated.

When both girls were dead the old woman made the feature of one appear as though she were scolding and the other seem to be laughing. Then she set their bodies on the beach and again hid herself behind a tree.

The old man came back and saw the maidens, one apparently angry and the other laughing.

"Why do you quarrel?" he asked. "Live in peace. I love you both. I have brought two otters as a present for you. Do not fight."

Upon hearing these words the old woman turned herself into a bear, an easy thing for her to do, as she was also a shaman. Then she sprang upon her husband, exclaiming, "Here am I—your wife. You left me without your care and food. I have suffered very much. Now that I have found you here you shall die. Akcheenkoo."

And with that she ate up the old man, together with his bidarkas.

Such was the end of the unfaithful husband of old Eekakhlee.

OLD MAN OF NUTCHEK

Long, long ago rich Anoogne lived in the village on Hinchinbrook island, keeping rough storehouses with their stone shelves

filled with valuable furs, many clothes and all kinds of native foods. He preserved many fish and eggs in the ground, for sour fish dug from the earth formed his favorite repast.

All of the villages about worked for the Anoogne and often he gave feasts in his house and the guests praised him highly for his generous deeds.

One evening the Anoogne took a walk on the seashore. The sky was blue, the sea was calm and the old man enjoyed his slow promenade. Suddenly his foot slipped and he fell. He had stepped on a dead fish cast on the beach.

Anoogne started to complain bitterly, but a voice came from on high, saying: "Do not scold. Do not curse the old fish. If I did not give to you the same fish for your food you will starve."

"If you did not send this fish, I will not starve," the Anoogne replied.

"Why not?" the voice asked.

The old man told him, "I have all kinds of fish. I have all kinds of meat, enough to keep me forever. My stores are filled with halibut, seal, bear, salmon, codfish, and mountain goats. I shall not lose the food I have stored."

But the voice continued, "Remember, Anoogne, very soon you shall be the most miserable man and thy riches shall not be of use to thyself."

"Never, never," replied the excited Anoogne. "I am the wealthiest of the natives and I shall never grow poor."

"What will you eat if your food freezes over?" he was asked.

"I have dried fish and meat and have buried fish eggs, a reserve that will last a long time."

"I can send the deep snow to cover the earth," he was told.

"Do not think you can even cover the koongat, the edible trees?" the haughty Anoogne responded.

No reply came, only repeated in gradually dying echoes, the sound of the word "ahtat."

Then the big flakes of snow started to fall softly over the earth. When the Anoogne approached his house the snow was up to his knees. His food had frozen and become like paper. The old man and his helpers started to shovel the white blanket.

but such great flakes fell this work soon appeared useless. The snow even passed through the roof and filled the barabaras.

Again came the voice from on high, "There you have it."

All of the island was covered by deep snow for twenty-four months. All living creatures perished. There was no food on land, there were no fish in the sea.

Anoogne began to starve. Greatly did he regret his mistake and his conceit. He called his neighbors and confessed his sin.

Then the voice came again, saying, "Do not speak bad words. Do not curse the food I send you. Do not grumble against fate."

So ended the story of the richest old man of the ancient village of Nutchek.

ELLAMAR,

ALASKA

BOOK REVIEWS

PREHISTORY

The End of a World. CLAUDE ANET. Alfred A. Knopf, New York, 1927. 268 pages, 60 ill. (\$3.00.)

This is a novel dealing with the life of a Cro-Magnon community in France during the very end of the Paleolithic. The story chronicles the experiences of a young man, portraying his life as a hunter, his initiation into the ancestor cult with its rites in the sacred grotto filled with animal paintings, the communal nuptial ceremonies, and his marriage. Although the book is a novel in the sense that a connecting thread of story runs through it, the main emphasis is directed toward the presentation of an accurate picture of Magdalenian culture as inferred from its artifacts and art. Interwoven in the fabric of this picture is the sustaining dramatic element of the gradual sense of impending doom which steals over the community. The climate slowly grows warmer, the reindeer disappear and, finally, a new race of men, round-headed people, appear and settle in the vicinity bringing with them a strange, new animal—the domesticated dog. The Cro-Magnons are gradually crowded out by the round-heads whose use of the dog gives them a tremendous advantage in hunting and the book ends as the Cro-Magnons, bewildered but resigned, face extinction before the ruthless wave of a new culture and a new people.

This book, although fiction, is by no means to be classed with the usual fanciful story-book dealing with Stone Age men. The style is objective and impersonal, yet moving. Apparently, the author has been at considerable pains to make his culture picture correspond with the actual facts and more legitimate inferences of archaeology; he was advised along these lines by such authorities as Boule, Peyrony and Breuil. The illustrations are pen and ink copies of original cave drawings or of illustrations of such drawings in various authoritative works.

This is an excellent book for a layman desirous of learning something of Stone Age culture without plowing through the standard treatises on the subject. Further, it probably deserves a certain pedagogical use as collateral reading for elementary courses in European archaeology and prehistory.

FORREST E. CLEMENTS

Primitive Hearths in the Pyrenees. RUTH OTIS SAWTELL and IDA TREAT. D. Appleton & Co., New York, 1927. 307 pp., 27 photographs and over 100 pen and ink drawings by PAUL VAILLANT-COUTURIER. (\$3.00.)

This book is a popular record of a summer's archaeological work in the French Pyrenees and is embellished by descriptions of all the famous caves of the region. The authors themselves discovered and partially excavated an Azilian site, even discovering two Azilian burials, one of which contained an almost complete skeleton. The scientific results of this research are soon to be published in this country by the Peabody Museum at Harvard and in France in *L'Anthropologie*.

These results should be highly interesting for two reasons. First, because the "Violet Hole" of Montardit, which was excavated by the authors, adds one more to the very small number of known Azilian sites and should considerably increase our knowledge of this culture. Secondly, the skeleton discovered is the first Azilian skeleton so far found in France. The preliminary study of the bones indicates that this individual was of short stature (about 5 ft. 2 in.), was mesocephalic (cephalic index of 76) and possessed relatively prominent supraorbital ridges. In general, the bones resemble those found at Ofnet and at Mugem, Portugal, in association with the Tardenoisian industry. The Montardit skeleton was ringed round with river pebbles and was accompanied by a few flint implements, painted pebbles, grinding stones and a scalloped tusk ornament, all of which clearly indicates an intentional burial. As to the culture discovered, the account is too sketchy for the archaeologist and we shall have to await the complete publication of the results for satisfactory information on this score.

Meanwhile, the present book makes interesting reading on account of its personal descriptions of such famous sites as Mas D'Azil, Trois Frères, Montespan, Tarte and Gargas, to name only a few. It is somewhat disquieting to learn that certain of these caverns, notably that of Montespan, have had their art works almost entirely ruined by tourists, who have not hesitated to superimpose their own artistic efforts and *graffiti* over those of the Paleolithic artists. On the other hand, the valuable and rich cave of the Trois Frères is being carefully preserved from such vandalism, and so are many of the other more recently discovered sites.

In addition to photographic illustrations, the book contains over one hundred pen and ink drawings by Paul Vaillant-Couturier who constituted the third member of the party. Many of these drawings are copies of cave art that has never before been figured. Supplementing the narrative of the archaeological work are chapters on the general culture of the Old Stone Age and the various types of fossil men so far discovered. This last should appeal strongly to the lay reader.

FORREST E. CLEMENTS

AMERICA

Archaeology of Mississippi. CALVIN S. BROWN. (Mississippi Geological Survey, University of Mississippi, 1926.)

Expeditions from institutions not permanently domiciled in the field of endeavor will no doubt long continue to seek the more spectacular archaeological areas. So it seems probable that the prosaic but necessary work upon which the edifice of American archaeology must ultimately rest will have to be undertaken by the various states. The subject has been politically recognized by governments like Mexico and Peru, and, to a more limited degree, by our own federal government. Yet less than six of the states of the United States have seriously and systematically undertaken the preservation and presentation of the evidences of prehistoric human life within their boundaries. Considering the widespread popular interest in archaeological matters it would appear that a deplorable lack of scientific interest has prevented the work being undertaken by the institutions best fitted to do it,—the state universities. Hence one feels that a particularly happy step has been taken when the University of Mississippi produces, through its Geological Survey, a summary of the archaeology of the state.

While Mississippi is to be commended for the example set the other states, she must be congratulated upon the man found to do the work. Perhaps it would be nearer the truth to say that its inception and accomplishment were doubtless due to the tireless enthusiasm of Dr. Calvin S. Brown, the author, and the sympathetic appreciation of Dr. E. N. Lowe, the director of the Mississippi Geological Survey. Dr. Brown undertook the work in addition to regular duties and gave to it a large portion of the vacations and spare time of ten years.

The book itself is a sane, concise description of the principal archaeological objects that have been observed within the state.

The details given and the 354 illustrations are suitable for technical work. Yet the book remains simple enough to stimulate the cooperation of the layman of the state in future archaeological research. Dr. Brown has wisely limited himself to an objective presentation of sites and objects of material culture. He indulges in no speculation and draws few conclusions. He is admirably conservative in attributing function to a given artifact. It seems, however, that this conservatism might have been carried, to the reader's convenience, into the mechanical arrangement of his book and his chapter divisions based entirely upon material instead of partly on types (e.g., "Axes and Celts"), partly on function (e.g., "Agricultural and Domestic Implements"), and partly on material (e.g., "Shell, Bone and Copper"). Material is the characteristic most easily recognized and the suggested arrangement would have made the work easier to consult in comparisons with other areas. The illustrations are excellent. As the author states, aboriginal work is so frequently illustrated by carefully selected pieces that exaggerated ideas of its beauty and perfection are common. Therefore his plan of including many crude but typical pieces is most salutary. The inclusion of a map would have been a great convenience to non-Mississippians.

The thoroughness of Dr. Brown's work impresses one; and, as in all areas, the lack of answers to questions that come to mind upon reading the book is probably due to the non-existence of data. Yet the very book itself makes us feel the need for a second volume, which it is hoped may follow, which would include a discussion of skeletal material, treat the frequency of types statistically, indicate their distribution and the ancient cultural areas more definitely, and trace their relationships beyond the state more comprehensively.

It is difficult to summarize archaeological objects, particularly without illustrations, but an attempt is made below to indicate some of Dr. Brown's principal findings under his various chapter headings.

Mounds. All of the numerous known mounds are located and described. These occur most frequently in the lowlands and are artificial structures, in the form of mounds, intentionally reared and composed generally of the surrounding soil. Human debris is mixed with this to some extent but is both absolutely and relatively scarce, in contrast to the unintentionally reared refuse heaps, shellmounds, etc. There is much variety in size and shape, but there are no effigy mounds. They were used for residence, burial, military purposes,

and perhaps for refuges in time of flood, signal stations, and religious and ceremonial purposes.

Arrowheads, Spearheads and Perforators. The most common prehistoric relic is a small flint, chert or jasper point. Spearheads, knives, drills, also occur. Such artifacts have been found in all sections of the state, on the surface, in Indian graves, and in the mounds; but the types are the same no matter where found. From the illustrations, the quality of workmanship seems second-rate, certainly below that attained elsewhere, e.g., in Illinois or Oregon.

Axes and Celts. A large variety of axes and celts, usually of polished stone, is found in the state. Celts replace grooved axes in the southwestern part, and the northwestern part is characterized by chipped celts of partly polished jasper. This suggests that a more definite statistical indication of type frequencies might enlighten some problems.

Ornamental, Ceremonial and Problematical Stones. Discoidal stones, probably used in the chungke game are most frequent. Spuds, boat-stones, gorgets, pendants, banner stones and cigar-shaped stones also occur but are infrequent. Plummets are few and all drilled or grooved as if for suspension. Stone beads are frequent, particularly in graves. The tubular type predominates, but stone disk beads are known. In Mississippi there are few cliff exposures favorable for petrography, hence the incised designs on some of these small stones are notable.

Agricultural and Domestic Implements. These are relatively scarce except handhammer-stones with depressions on two sides which are among the commonest artifacts of the state. Stone hoes and spades are infrequently found. Mortars are generally limited to those parts of the state where there is plenty of stone. The depressions in these are usually shallow and occur on two sides. Mullers seem more plentiful than pestles, which are crude in form. Four elaborate stone vessels are recorded. Thin, incised stone slabs called paint palettes are known. One is notable for a complicated, conventional design of a feathered snake. This suggests Mexico or Central America as do some of the designs on other artifacts; and their great superiority to the general run of art exhibited presents interesting possibilities.

Pipes. Pipes are comparatively frequent and exhibit a range from the simplest to the most complicated forms. Both clay and stone were used. Rectangular, cylindrical, stemless, effigy and monitor forms appear—the effigy probably in greatest numbers. Some of the

effigy pipes weigh as much as 19 pounds. Humans, bears, frogs are the commonest motifs. The feathered serpent design also appears. The work on pipes is one of the highest manifestations of aboriginal art within the state.

Shell, Bone and Copper. Shell and shellheaps are common within the state but shell artifacts are relatively scarce. Numerous tubular shell beads occur, and some shell disk beads but these appear rather crude and there appear to be no other types. Pendants, ear-plugs and gorgets are also noted. These gorgets or disks are frequently elaborately incised. One with a bird design has been poetically described by Holmes.

"Many" bone perforators appear; but bone artifacts are very summarily treated, so that one receives the impression that they were not important.

No certain objects of native copper are mentioned.

Pottery. This occurs in mounds, in graves and scattered over the surface. It is of excellent quality, surpassing that found in the North but not equalling that of the Southwest. There is a great variety of form—bottles, pots, platters, "tea-pots," double and triple vessels, disks, pipes, etc. It is both plain and decorated. Decoration consists of incised designs, some coloring, and molded effigies. The frog, fish, tortoise, reptile, bird, bear, human and mythical beings form favorite motifs. Geometrical designs are frequent. Plant designs are entirely absent. The decoration is almost always on the exterior. All work is made by the hand or by molding, the wheel being unknown.

With reference to pottery, there seem to be two cultural areas, first distinguished by Holmes—the Middle Mississippi Valley centering near Memphis, and the Lower Mississippi Valley centering near Vicksburg. The latitude of the mouth of the Red river is the dividing line. The uplands and Gulf shores seem to show comparatively little pottery. The main differences in the pottery of these two areas are incised decoration, solid black ware more common in the Lower; and red and polychrome decoration, bottle forms and effigy figure more frequent in the Middle. Over sixty percent of Dr. Brown's illustrations come from a single site near Walls in the northwestern corner of the state. And his references to an "ancient Walls culture" seem worthy of greater elaboration. For the Lower Valley culture he seems to depend mostly on the work done by Mr. Clarence B. Moore.

Post-Columbian Material. Here an indication of the type of articles made by Caucasians but expectable in Indian graves is given.

W. EGBERT SCHENCK

La Musique des Incas et ses Survivances. R. and M. d'HARCOURT.
Paris: Librairie Orientaliste Paul Geuthner, 1925.

This impressive work of some 575 pages with an accompanying volume of plates gives the results of the study of ancient and modern popular music in the region which corresponds closely to the ancient empire of the Incas: Ecuador, Peru and part of Bolivia. The transcriptions of over two hundred songs are given, for the most part with the Indian words and the translation into French. A few are also given arranged to be played on the piano. The volume of plates contains some 275 photographs of ancient and modern musical instruments beautifully reproduced. Separate chapters are devoted to the various kinds of instruments; rattles, drums, xylophones, trumpets, pan's pipes, flutes and flageolets, whistles, ocarinas, and even stringed instruments. One long chapter, making up part two of the book discusses festivals and dances.

Part three gives a very interesting and complete discussion of the musical folk-lore of these people, a study of the modal character of the music, rhythms, forms of composition, the poetic text of the songs, personal notes on the singers themselves, with an account of the methods used in collecting these songs, ending with a chapter on the relations between the musical folk-lore of these Indians and that of the natives of North America and of Spain.

To try to find correspondences between the songs of the North American Indian and those of the South American Indian seems hopeless to one who has tried to find relations between the songs of adjacent tribes on this continent. There is as little in common between the rich, sonorous singing of the Hopi and the screaming falsetto of his neighbor the Navajo, as there is between the German songs and the songs of the Turk. It is as meaningless to speak of "Indian songs" as it is to speak of "European songs." Even as fundamental a matter as the modality can not safely be used to set up relations between different tribes and peoples. The authors seem to believe that the antiquity and authenticity of a song can be estimated, roughly at least, by the amount of its deviation from the pentatonic scale. They give an attempt at historic classification based principally on the modal structure of the songs. This classification, which they themselves warn us should not be taken rigorously, serves roughly to pick out the more recent from the more ancient of the songs. There are, of course, songs which can not be definitely assigned to one or the other of the various classes proposed, and the whole scheme seems a little untrustworthy in view of the world-

wide occurrence of the pentatonic scale among peoples of no very great musical culture. It is nevertheless a serious attempt at a most difficult problem, especially difficult in this region where in spite of the isolation of the Indians in the high and remote parts of the mountains the influence of the Spaniards has been for centuries constantly at work modifying and adapting the native songs. The Catholic missionaries were psychologists enough not to attempt to root out the pagan songs. They brought them into the fold of the Church and made them do duty in Catholic worship, using words which are a mixture of Indian and Spanish. One of the most striking of these is the Hymn to the Eucharist: *Kanmi Deos Kanki*, of which the first verse with its translation runs:

<i>Kanmi Dios Kanki</i>	<i>Tu es Dieu</i>
<i>Yurak hostia santa</i>	<i>Blanche hostie sainte;</i>
<i>Khonkkor sayaspam</i>	<i>A genoux</i>
<i>Čunka mučuy kuiki</i>	<i>Je l'adore dix fois</i>
<i>Uyaril'away</i>	<i>Écoute-moi</i>
<i>Apu Jesu-Cristo</i>	<i>Seigneur Jésus-Christ,</i>
<i>Dios wakča kuyak</i>	<i>Dieu aimant le pauvre.</i>

These picturesque words are set to a stately and impressive theme; indeed, they are given two settings both of striking dignity and power. How much of the old pagan hymn remains in them is hard to guess.

It is difficult not to ascribe to the Indian the same reaction to musical forms that we ourselves experience. Thus one is drawn irresistibly to the feeling that major and minor modes affect him as they do us. Thus in commenting on the preponderance of minor songs among the Indians (something like 65%) the authors say

La tristesse de l'âme indienne y a trouvé son moyen d'expression le plus profond.

But 65% does not seem like an "imposante majorité." Moreover, many of the major songs are set to plaintive words and many of the minor songs appear with delightfully saucy and amusing verses. But again, it is difficult to draw any reliable conclusions since the songs are no doubt much older than the words that are given to them here. The reviewer has never been able to find any evidence of an interpretation of the minor mode as a sad mode among the tribes of this continent. In all the collections appear many songs of a sad and plaintive nature set to what seems to the white man's ear gay and hopeful themes, and one can also find many humorous songs and

songs of laughter and derision set to what seem to us mournful and plaintive airs.

Compared with the songs of the North American Indians these songs seem quite sophisticated. There is a strong Spanish flavor even in the most primitive of them. The phrases are for the most part well marked. The amorphous character of a typical Sioux or Chipewewa song never appears among them. There is no reason to doubt that the transcriptions are accurately and carefully made. The phonographic records, unfortunately for good and sufficient reasons, were not preserved. The blanks were too difficult and too expensive to obtain and too inconvenient to transport. This is a great pity, of course, but the authors were in the habit of making a careful study of the records on the evening of the same day that they were collected and any ambiguities were cleared up before they were erased. The authors are evidently responsible musicians and gifted with an unusual ability in making transcriptions. Their plan of writing each phrase by itself uses up a good deal of room on the page, but certainly makes for clearness. To the reviewer, phrasing seems to be the most important matter to emphasize in a song. Certain tribes whose songs he has studied such as the Miwok and the Pomo seem to have an extraordinary feeling for phrase and answering phrase, a feeling which appears to be very rudimentary among others, such as the Yurok and the Hopi. This feature of Indian song seems much more promising as a means of classification than modality.

DERRICK NORMAN LEHMER

Tribes and Temples. FRANS BLOM and OLIVER LA FARGE. Tulane University, New Orleans, 1926. 2 vols., 536 pp., 7 pls., 5 maps, 274 figs.

This is "a record of the expedition to middle America conducted by the Tulane University of Louisiana in 1926," and is dedicated to Maudslay. For some reason no author's name is given on the title page. Blom is responsible for the sections on archaeology (p. 1) and apparently on narrative (p. 189), La Farge for those on ethnology and language. La Farge's portions seem to be chapter 4 (San Martin Pajapan); pp. 141-145 of chapter 5; chapter 15 (Bachajon, northern Tzeltal); perhaps parts of chapter 16 (highland Tzeltal); and appendices 1 to 6, which consist of Populuca, Yocotan, Chontal, Tzeltal, Chaneabal, and Jacalteca vocabularies, Yocotan grammar, and Yocotan and Tzeltal texts.

The itinerary of the expedition comprised Tampico, Vera Cruz, Piedra Labrada, Frontera, Villa Hermosa, Comalcalco, Tortuguero, Palenque, Encanto, Toniná, Ocosingo, Comitan, Huehuetenango, Quetzaltenango, Guatemala, Puerto Barrios.

This is a competently executed and well written work containing valuable new information. Its outstanding defect may be mentioned at once: an attempt to combine the popular aspects of expeditionary travel with solid scientific description. The archaeological reader is constantly and without warning being dumped out of evidence into chatty narrative of experiences of journey. The layman will feel no kindlier at having his story slide for long passages into discussions of ground plans or elementary accounts of unpopularizable subjects like the Maya calendar. The days of Stephens and Squier are over for Central America; separation of narrative which appeals to the layman's sense of adventure, and of scientific text, is not only indicated but most likely to meet with approbation.

The scientific portions of the work, however, are beyond reproach, even where the accounts are of necessity cursory or preliminary; the illustrations are excellent in subject as well as execution, and comprise many valuable sketch maps, plans, and diagrams.

Of particular interest are monuments at Piedra Labrada (figs. 38-40); Mayoid stelae, altars, and figures at La Venta (figs. 67-80) on the Blasillo, 100 km. west of Comalcalco, the nearest identified Maya ruin; and a 25-page account of the latter site. This includes a map (fig. 84), plans of several buildings and tombs, and photographs of eight Old Empire relief figures (figs. 100-110) which Mr. Blom calls "the best stucco work yet found in the Maya area." The reviewer agrees with him: these profiles are superb by any esthetic standard. Baked brick laid in lime mortar is attested for Comalcalco; the average size is $25 \times 19 \times 4$ cm., and many are incised. This is the only Maya area in which true brick has been found, Berendt and Seler reporting it also from sites between Comalcalco and Bellota. Comalcalco has scarcely been visited since Charnay in 1880 and will be a most important site for careful exploration, both on account of intrinsic interest and its northwest frontier position.

At Tortuguero was seen a stela with the date 1 ahau 3 kankin 13 tun corresponding to Morley's 9-10-13-0-0 and Spinden's 386 A.D. From a Zopo cave nearby are shown three interesting modeled pottery cylinders (figs. 122-124). Especially important is a section on Palenque (pp. 169-189, pls. 1-2, figs. 127-156), extracted from

the official but as yet unpublished report on the work done by Mr. Blom in 1923 for the Dirección de Antropología. At Yoxiha (pls. 3-5, figs. 178, 185-192) Maya pottery was excavated. Important also was the Expedition's work at Toniná in the Ocosingo valley (ch. 13, also figs. 196-198), which contains 28 monuments and 10 date inscriptions (9-6-0-0-0 to 9-19-0-0-0). Other sites in Chiapas from which new data were secured, including late Old Empire dates, are Comitan, Tenam, Chinkultic (figs. 348-367). Nearly all of the area transversed by the expedition has remained relatively little explored hitherto.

Space forbids discussion of Mr. La Farge's contributions to the little developed field of Mexican ethnology, but they are worth while and welcome.

Tulane is to be congratulated on this first published offering of a department full of promise for the future of Americanistics.

A. L. KROEBER

University of California Publications in American Archaeology and Ethnology, Volume 21, 1924-1927. University of California Press, Berkeley, California.

This volume, the latest of one of our largest and most valuable anthropological series, is but the first of several which are to be devoted to Peruvian archaeology and which will, the reviewer believes, bring this fascinating department of American archaeology out from the haze of hypothesis and legend which formerly shrouded it and which has hitherto been pierced at only a few points, and will place it at last on a firm basis established by demonstrable and defensible conclusions based on scientific excavation and careful comparison. Before long now we may hope to see the main features of Peruvian cultural sequences as well established as are those of our Southwest, and by similar means.

While a plethora of Peruvian material exists in most large museums, practically none of it has been gathered under conditions of scientific record, rendering it, however aesthetically beautiful, of little value for the establishment of cultural interrelations and sequences. The key to the maze, of which Dr. Kroeber and his collaborators have made such good use, lay in the collections made by Dr. Max Uhle, the Nestor of Peruvian archaeologists, for the Museum of the University of California between 1899 and 1906. For twenty years this material, perfectly documented and with accompanying scientific data, lay

untouched in the building on Parnassus Heights but has finally revealed its true importance.

The collections are of unusual scientific value. They were gathered by a trained scientist at productive points stretching from northern to southern Peru, and from the coast to the highlands. They are accompanied by records made at the moment of excavation. And above all, the greater number of objects are carefully segregated and specified according to the cemetery and grave in which they were found. (p. 3).

The authors of the volume were therefore singularly fortunate in the body of their material.

Eight numbers comprise this volume: *The Uhle Collections from Chincha* by A. L. Kroeber and William Duncan Strong, *Explorations at Chincha* by Max Uhle, *The Uhle Pottery Collections from Ica* by Kroeber and Strong, *The Uhle Pottery Collections from Ancon* by Strong, *The Uhle Pottery Collections from Moche*, *The Uhle Pottery Collections from Supe* and *The Uhle Pottery Collections from Chancay*, the last three by Kroeber, and *The Uhle Collections from Nievería* by A. H. Gayton. The edited official field reports of Dr. Uhle are added as appendices to all the numbers except those on Nievería and Moche, Dr. Uhle having published elsewhere the results of his researches at these places, and on Chincha, Dr. Uhle's report being here issued as No. 2 of the volume. In all but the first and last numbers, treating of Chincha and Nievería, only the pottery is considered. Peruvianists afflicted with the methodological complex will regret that the editor did not see fit, or possibly could not contrive, to group together in the volumes the numbers from the various localities according to geographical propinquity and maximum cultural connections: Chincha and Ica with Pisco, Nazca (already published as Vol. 24, No. 1) and possibly Chala; Ancon with Chancay, etc. Such a systematic arrangement would have integrated the series and made the interrelationships more obvious and comprehensible.

Unfortunately

during all his work for the University of California, Dr. Uhle seems not to have succeeded in encountering another clear instance of stratification of cultural deposits comparable to the notable discovery of this kind which he made at Pachacamac. (pp. 3, 4)

The authors were therefore forced to base their deductions on other grounds than this most sure foundation. Their method of attack is explained on p. 5:

The plan is to examine separately and in detail the collections from each district; to group together, according to the field inventory, specimens of the same grave provenience; to group the graves according to type of artifacts represented in them; to assume that graves containing artifacts of identical type belong to the same period, and that those containing artifacts of consistently different types belong to different periods; and then, from the overlapping of types and whatever other evidence, direct or indirect, may be available, to attempt to establish a sequence of the periods.

The rest of the 329 pages and 97 plates of the volume demonstrate the results of this program with basic data, working plans, deductions and illustrative material. Statistical tables are frequent, impressive and presumably conclusive.

The authors adopted an exclusively objective *modus operandi*, disabusing their minds of all preconceptions and especially disregarding all of Dr. Uhle's interpretations. Their final conclusions, however, reached independently, have in almost every case substantiated the earlier deductions of Dr. Uhle, supplementing many of them, slightly revising some, disagreeing with a few minor points. A fine tribute is paid to the fundamental importance of Dr. Uhle's work on pp. 97, 98.

To those who are still in doubt . . . the following fact may be of interest . . . Analysis of the data has forced upon them [the authors] not only the acceptance of all the culture phases and periods announced by him, but the establishment of finer subdivisions. In other words, intensive, first-hand reëxamination of his evidence both corroborates and extends his conclusions.

To present even the barest résumé and digest of the authors' conclusions would carry us far beyond orthodox bounds for a review. In each of the seven localities, from three to seven more or less distinctive pottery types were recognized. These types are designated for the greater part by the name of the locality, as Late Chincha, Middle Ica, Proto-Lima, and only in the case of identity of type has the foreign relationship of any ware been admitted in its designation, such as the pure Proto-Nazca type at Ica, and Late Chimú at Supe. The more established and wider-spread Inca, Tiahuanaco and Epigonal styles, first differentiated and described by Uhle, were, however, recognized at several of the localities. This multiplicity of terminology may seem confusing but is necessary and unavoidable in these early fundamental stages of classification. The resemblances and relationships of the various types to those from other localities have in the majority of cases been pointed out and remarked, but to no great length and generally in a cursory and unsatisfying manner. The diffusions of Inca, Epigonal and Tiahuanaco types and especially

of blackware (pp. 251-253) have received some attention but in general each number stands apart, and a correlation of the entire series, which we may hope is planned as the final number, is most urgently indicated and needed.

In several places, as at Chíncha, Ica, Ancon, Moche and Supe, the contemporaneity during a considerable period of time of two distinctive types in the same locality was noted, illustrating the danger of hasty generalizations.

It is clear that offhand identification of styles with periods in Peru is a dubious procedure . . . Peruvian problems of chronology are often difficult because of the frequent blending, mixing and coexistence in the same locality of originally disparate styles. (p. 247).

The suggested explanation is that this differentiation was caused by economic or other unknown social factors. In other instances, however, the temporal lines were clear-cut and unequivocal. In some of the localities the well-documented grave material comprised the bulk of the material, permitting easy classification and a cogent sequence system; in others, the data were far more equivocal and the deductions more difficult and uncertain. Owing to these conditions the several numbers, though directed towards the same goal, follow different plans of attack and of logical presentation.

No epoch-making discoveries or revolutionary conclusions startle or attract the student, the results developing almost exclusively along the broad lines laid down by Uhle. The history of pottery on the Peruvian coast is seen from the orthodox viewpoint. The coast consisting in general of isolated valleys, an individual pottery type arose in each, influenced by and somewhat resembling the ware from the valleys most adjacent. The Proto-Nazca and the Proto-Chimu types, being the earliest of the important styles, enjoyed the widest influence. Later these individual styles were almost everywhere affected by the great waves of highland influence, Epigonal, Tiahuanaco and Inca.

It is on the Epigonal question that the authors find their greatest point of disagreement with Uhle, their data indicating that Epigonal may have been proto- rather than decadent Tiahuanaco.

In short, except perhaps in its presumptive immediate homeland on the Bolivian plateau, the Tiahuanaco style nowhere appears alone but is regularly associated with the supposedly derivative Epigonal or with local styles or with both. On the other hand, it is the one style other than the Inca which is found over almost all Peru. (p. 212).

The later phases in particular seem most often to have been rather short (except at Ancon), and frequently contemporaneous in some localities, and the influence of the Inca on these local styles is patent. The ultimate position of the Inca is again proved by the discovery of European objects associated with it in interments.

These conclusions Dr. Kroeber has formulated in brief style on pages 229-232 under the heading "Style and Period in Peru." He distinguishes four general periods:

1. An early period entitled Pre-Tiahuanaco, composed of local types among which the northern and southern extremities of the coast played the principal rôle, and consisting of Proto-Nazca, Proto-Chimu, Early Ancon and the Supe shellmound material. The predecessors of the beautiful first two wares are still to be sought.

2. Tiahuanaco and Epigonal with their coastal reflexes.

3. Pre-Inca, consisting of many local types.

4. Inca and the local styles under Inca influence.

On the question of extra-territorial relationships in Peru the authors remain unconvinced. At Moche a type of ware superficially very un-Peruvian and similar to Aztec pottery from the Valley of Mexico was found, but its relation with wares of indubitable Andean characteristics in Peru (Viru and Chicama) and in Ecuador (Tunahuan) is demonstrated, and in general the authors avoid Uhle's claims of Middle American influences in Peru and ignore the entire problem.

As in all the volumes of this series, the format and typography are unexceptionable and typographical errors are as scarce as the proverbial hen's teeth. Errors in reference to plates are more common however, and even inexcusably profuse in Number 4, by one of the junior authors, pp. 146-154. The text figures frequently startle and annoy the reader by their unnecessarily large size, especially those on pp. 278-288. The plates are the California standard, all arranged in systematic order and giving a perfect visual demonstration of the characteristics of the various pottery types except in Number 8, by the other junior author, in which the various types are so scattered over the plates that it is impossible to visualize the type characteristics.

Kroeber's unification (p. 211) of two aberrant types found at Moche and differentiated by Uhle as "Post-Tiahuanaco" and "Non-Tiahuanaco" does not seem, at least on the basis of the illustrative material presented (pl. 64-66), to be proved. The painted specimens on pl. 66 bear slight resemblance to the specimens on the two pre-

ceding plates, and the bowl (h) bears a remarkably close resemblance to specimens from Ecuador (Angel ?), although the latter are commonly decorated in negative painting.

The final number on Nievería is the least convincing of the series, possibly necessarily so owing to the unsatisfactory nature of the material. In addition to the confusing arrangement of the specimens on the plates, the grouping into four "strains" of which

A and B are styles including features of texture, shape and decoration; C is a style of ornamentation; and D one of shape. (p. 308)

seems to be an irrational system. A grouping by different categories would seem more logical. Strain C is apparently much influenced by, or at any rate related to Middle Ica designs, a fact not noted by the author. Figures *a* and *c* of plate 95 seem especially Ican in point of ornamentation and somewhat related in point of form. Compare pl. 32. Figure *f* of plate 95 which is of almost identical form with *a* and *c* and, to the reviewer's eye, equally Ican in ornament, is labelled 'Nazca Influence,' the other two "Strain C." Figure *j* of plate 95 is on page 312 classed as "Epigonal A" and has grave provenience ascribed to it, while on page 314 it is termed "Chimu Influenced," a non-grave specimen.

We look forward to a final summary and correlation of the results from all the regions of Peru, not only of those published in the present volume, but of those appearing and to appear in subsequent volumes, which will afford us the first fully comprehensive and well-documented picture of cultural developments, relationships and sequences in ancient Peru.

J. ALDEN MASON

ASIA

Prehistoric India, Its Place in the World's Culture. PANCHANAN MITRA. Second Edition. University of Calcutta, 1927. 152 pp.

A satisfactory review or reference work on the prehistory of India has long been a desideratum. Mr. Mitra's book goes part way in filling this need. It touches on all principal aspects of the subject, it summarizes conveniently much of the more important evidence, and it is so arranged that matter can readily be found. The chapter contents are: Races and Cultures; Geological Background; Palaeontological Basis; Pre-Chellean; Early Palaeolithic; Pleistocene Cave Life (Karnul); Late Palaeolithic; Cave Art and Rock Carvings;

Neolithic Types; Neolithic Stations; Metallurgy; Mohen-jo-Daro; Copper and Bronze; Megaliths; Megalithic Structures; From Extinct to Living Types; Potteries; Culture Sequence and Origins.

The author seems to hold that Palaeolithic culture was imported into India; no forms specific to the peninsula have been found.

India had received the waves of Mousterian culture very early, but Australia had it perhaps along with Mesolithic art.

An Indo-Australian culture complex, apparently Mesolithic, is placed at 14,000-9,000 B.C., to be succeeded by an Indo-Erythraean one, 9,000-5,000, with Egyptian relations. The opinion that iron followed directly on stone in India seems to be endorsed; in fact the iron of the Egyptian pyramids may have come from southern and eastern India. Most of the preserved specimens of prehistoric Indian iron come from Deccan megaliths. The 500 known copper implements of India are not dated but are suggested as early. They come from twelve sites in India, none of which lies in the Punjab or South. Only six bronze artifacts have been discovered; four that are analyzed contain from four to thirteen percent of tin.

The weakness of the work is its compilatory character. Almost everybody that has written on archaeology anywhere is referred to, and there are abundant quotations. There is plenty of honest admission of ignorance and doubt; but little sense of problem. Even problems which are still insoluble for lack of evidence can often be advanced by sharp definition and taking stock of the knowledge and the gaps that exist. Such definition would not yield a "book"; it would promote clear knowledge and probably hasten the day of a broad system of excavations. Until the needed monograph is produced, non-specialists in the Indian field will be grateful to Mr. Mitra for his learning, industry, and moderation.

A. L. KROEBER

INDONESIA

Terres et Peuples de Sumatra. OCTAVE J. A. COLLET. Société d'Édition "Elsevier." Amsterdam, 1925.

Few, if any, countries in the Dutch East Indies present for the ethnographer conditions of parallel interest to those of Sumatra. Here among the twenty different linguistic stocks of peoples may be found every kind of social organization; from the rude hunting tribes practising bilateral descent, to the semi-barbaric Batak or Niha with

strict patrilineal reckoning, or, still more interesting, the cultured Minangkabau with Mohammedan faith but pure matrilineal reckoning. To the student of primitive religion, Sumatra and the adjacent western islands are capable of furnishing a treasure-trove of significant data. In the main island itself the former pure animism has been overlaid by more sophisticated beliefs, among the Batak by Hinduism and elsewhere by a combination of Hinduism and Mohammedanism. The ethnographer can, if he wishes, trisect these cultural layers, ever finding interesting survivals. As a check, he can turn his attention to Nias and the Mentawai islands to the west. Here the religions have been little altered by foreign contact. Certainly in Mentawai the people are still living in a mental, although not physical, stone age. One need not merely inquire into former beliefs concerning ancestral ghosts or all guarding nature spirits. These spirits are ever present, bringing their dangers and their blessings, according to the fidelity of the indigenes in their obedience to the words of the shamans and the teachings of the forefathers.

Collet, in the present volume, has rendered anthropology a distinguished service. The book is not only accurately prepared from a great mass of original documents, but it is written with a style, a keenness of insight, an incisive art of terminology only possible to one who has not only lived in and loved Sumatra, but who also possesses the ability to give the world the full fruits of his scholarly achievements.

Minangkabau was the traditional cradle of the conquering Malay race, and Collet depicts the Malay,

Accroupis, les genoux au menton, enveloppés dans leus sarong, la cigarette nonchalamment collée à la lèvre inférieure, ils gardent l'immobilité et le silence.

I also have visited Minangkabau and have seen the women staggering along with their heavy burdens, or working spattered with mud in the rice fields, while the men in gala attire, umbrella in one hand, bird-cage in the other, attend the fair and its attendant gambling. And this under the so-called "matriarchate"!

The present volume is inclusive enough to suit all classes of readers. The history, geography, geology, botany and politics of Sumatra, both past and present, are dealt with. Maps, charts, tables of statistics and the profuse photographic illustrations enable the author to present his material in the limited space allowed. It is, however, only with the ethnography that the present critic can deal,

and in that only with a few of the problems presented by the social and religious organizations of the natives.

Collet has included a sociological map of Sumatra. In this region, the lower cultured peoples tend to have bilateral descent (labelled "régime cognatique") while the more advanced peoples practise either patrilineal or matrilineal descent. The truth of this generalization would have been more apparent had the author inserted the Kubu and other migratory peoples in his map, and made the correction that the people of Mentawai have bilateral, and not patrilineal, descent. The Batak have strict patrilineal descent and patrilocal residence, while the Minangkabau, in the bordering region, have strict matrilineal descent and residence. In these two regions, as among the other more cultured peoples of Sumatra, we find exogamous sib formation. The Minangkabau have four sibs plus a moiety system. The Batak show traces of totemism among some of their sibs. It must therefore be concluded that in Sumatra, as elsewhere, "exogamy and totemism, matrilineate and patrilineate, multiple and dual sibs, all show a strong tendency toward association with one another."¹

Some interesting correlations are suggested by the marriage customs of Sumatra. One correlation may be summarized as follows: under the matrilineate, including matrilineal residence, a marriage price is impossible, under bilateral régime it may or may not occur, while with the patrilineate and patrilocal residence the marriage price is usual and the wife passes over as the property of the husband.²

Everywhere in Indonesia adultery is considered a crime, in Buru formerly as the greatest crime.³ Adultery on the part of the married woman was, in many regions, punishable by death. Yet in Sumatra there is little demand made that a girl remain a virgin before marriage. Obviously such a demand would be unheard of among matrilineal people where the husband is a mere visitor, and, strangely enough, is not usually met with among people, such as the Batak, who are strongly patrilineal. Yet that there is a tendency in this direction

¹ A. L. Kroeber, *Anthropology*, 237, 1923.

² R. H. Lowie suggests that with the complete matrilineate the husband is compelled to do some amount of work for the kin of his wife. This furnishes a material, although not psychological equivalent, of a marriage price.

³ J. G. F. Riedel, *De sluik en kroesharige rassen tusschen Selebes en Papua*, 16, 1886

is shown by the people of Nias, where a girl who is not a virgin, or who is a widow, sells at half price.

Minangkabau, as already stated, presents the unusual case of a matrilineal system surviving under patrilineal Mohammedan law.

Under the régime of the matriarchal union, the father is not the head of the family; he is simply the indispensable procreator. When he visits his wife, he is treated in the lineage house as in a privileged hotel, harbored and nourished because of his conjugal relations, of which the external etiquette is very severe. The nocturnal visits of the husband have to be very clandestine; it is by the back door of the house that the husband enters. If he is discovered in the house he has to take an embarrassed attitude, and the person who lights upon him has to pretend that he has not seen him.

The married man passes his days in his own maternal residence and his nights with his wife. No pecuniary conditions are attached, except that the man has to work for the kin of his wife. In a sense the women of the community possess political power, as much perhaps as the Iroquois, for

important questions are first discussed in each household, under the direction of the *Indua*, grandmother or grandaunt, guardian of the traditions and wealth of the community—then debated between the masculine members of the family and the *mamaks* who carry out their orders.

The *mamak* is the actual delegate to the legislative assembly. He is the brother or uncle of the chief woman of the lineage.

The Minangkabau system has its sociological advantages and disadvantages. Collet points out that matrilineal succession and lineage communism prevent pauperism and the subjection of the woman by a brutal male. But, on the other hand, the communism diminishes the initiative, especially of the male, weakens moral stamina, and individual consciousness and personality. There is no need here for a man to build a new house or clear a new field. While there are no prostitutes in Minangkabau, some of the women cannot remember all the names of their husbands; "They are too many!"

This situation has provoked an emigration of the more energetic of the masculine element who wished to seek their future and found a family of their own afar. But still the system has survived, in spite of contact with European ideas, in spite of Mohammedan law and custom. Whatever may be said in its disfavor it does prevent pauperism, prostitution and weakening of family allegiance. That these evils are well nigh inseparable from conditions brought about by contact with "higher civilizations" and increasing density of population, is but too well illustrated elsewhere in Sumatra.

A final point of considerable sociological interest is found at the extreme south of the island, in Palembang, a region of patrilineal exogamous sibs. Here the usual mode of marriage is by seduction, with the consent of the girl's parents, or "mock capture." The point to be noted is that this "mock capture" is by no means a survival of a former "marriage by capture," but is a custom developed in situ, in response to the functional needs of the native social and economic system.

The marriage price is a formidable affair here, and a great obstacle to marriage. The bridegroom usually resorts to "rape marriage," due to his having insufficient funds to pay the parents and at the same time hold a correct wedding. The ceremonial "rape" hastens the date of the wedding, which would also be put off indefinitely. It also gives the necessary amount of publicity to the marriage, an important factor in communities not possessing written legal records.

After several days devoted to fictitious searches, the father finally discovers the retreat of the couple and appears at the doors of the village in which they have taken retreat at the head of a large armed force. The inhabitants of the village pretend to oppose his entrance. A mock parley ensues, and the father enters and comes into agreement with his son-in-law concerning the previously arranged marriage price.

Collet has one chapter devoted to "La barrière insulaire," or the islands to the west of Sumatra. Here the writer covers ground probably personally unvisited by him. At any rate one does not discover the same sympathetic treatment accorded to this region as to the main island. Not much more can be gathered from this account than that already presented in 1811 by Marsden. The treatment of Nias is the most complete, for there was the systematic work of Schröder to compile from. But why should the author insert the unfair statement,

On peut dire que le Niha ne conçoit pas une béatitude plus parfaite que celle d'une digestion voluptueuse?

Surely feasts give a needed religious exaltation to the natives of Nias, as elsewhere. They are a break from the work-a-day world. Also, as Moss has pointed out for the Nabaloi Igorot, the Indonesian feasts have their economic and sociological functions.

"It is by means of the ceremony, that the poor get a large part of their food, and the rich their authority."⁴

⁴ Nabaloi Law and Ritual. University of California Publications in American Archaeology and Ethnology, 15: 288.

The portion of the chapter devoted to Mentawai is especially tantalizing to me, because it perpetuates certain errors made by Maass,⁵ without noting the later corrections of Kruyt.⁶ It will suffice to say here that the people of Mentawai do not go to sea in their small two-seater canoes, but have large sailing-ships. The completion of marriage does not depend on tattooing, but on other social, economic and religious factors. The taking of a head is by no means essential to marriage, and, except for the northern part of Siberut, head-hunting has never been practised. Finally, an essential part of the *punen* system, and one that sharply differentiates it from the *gena* of the Naga of Assam, or the ceremonies of the Igorot, is the taboo on all sexual intercourse during the duration of the ceremony. A Mentawai *punen* may last a week, it may last twelve years, or longer.

However, the present volume was not devoted to this little-known group of islands, and their treatment is included as incidental. In the praise which properly belongs to the remainder of the book, I trust that these slight corrections will be dismissed in the same manner.

E. M. LOEB

Nias. Ethnographische, Geographische en Historische Aanteekeningen en Studien. E. E. W. GS. SCHRÖDER. Leiden: E. J. Brill, 1917.

In these two portfolio volumes by Schröder—the first text and the second photographs—we have presented one of the most complete studies of a people ever made in Indonesia or elsewhere.

In the previous review of Collet's work, I have spoken of the importance which the islands west of Sumatra present for the ethnographer. The present study, made by an official of the Netherlands government during his term of office, in main part from 1904 to 1909, will remain a monument to Dutch thoroughness in scientific pursuit. Like most ethnographic research, the present work is bound to gain in importance with the passing of time, for the ancient culture of Nias is already undergoing the disintegration process attendant upon foreign civilization. Archeologically much will survive into the future, Nias having, as termed by Heine-Geldern a "megalithic culture"; but traditionally much is even now solely safeguarded in

⁵ A. Maass, *Bei liebenswürdigen Wilden.* Berlin, 1902.

⁶ A. C. Kruyt. *De Mentawaiers.* Tijds. voor Indische Taal, Land en Volkenkunde. Deel LXII. Afl. 1, 1923.

the minds of the old men. In spite of the material advancement of the Niha, due perhaps in part to early contact with the Hindu traders, a system of writing was never introduced into the island.

Nias contains about 160,000 inhabitants, and is both the most thickly settled and the most civilized of the western group. Contrary to popular opinion, the prevalence of head-hunting on the island furnishes a proof of comparatively high culture, for head-hunting was unknown to the earlier, and culturally inferior, races of the East Indies—the Negrito and the Veddoid.¹ Even the Mentawai islanders, proto-Malay like the Niha, only acquired the trait of head-hunting in the north of Siberut, and that by diffusion from Nias by way of the intervening Batu islands.²

With head-hunting are associated, in Nias, the common Indonesian traits of wet and dry rice culture, betel chewing, pottery, stone work, weaving on the simple loom, and iron smelting. These elements of a higher culture are lacking among the natives of Mentawai. The working of gold for ornaments in Nias points to direct Hindu influence.³

Every writer on Nias points out the differences, political, social, moral, intellectual and material, which exist between North and South Nias. One striking difference is in the villages themselves. In the south these are large, well laid out and furnished with an abundant water supply. In the north the villages are small and dependent on natural features for concealment and protection. Hence they are usually removed from water supply. In the north the people are apathetic physically and psychologically as a reaction from the constant warfare and insecurity of life in the past. In the south the people are energetic, and possess a high sense of order and artistic tendencies. Yet it is in the south that the people have resisted foreign rule the more passionately, and even today practise head-hunting and human sacrifice.

Aside from the elaborate use of stone in Nias—used not only in memorials for the dead, but also in fortifications and in the form of

¹ The theory of racial immigration into the Indies is discussed by De Zwaan. *Rassen van den Indischen Archipel*. Amsterdam, 1925. A summary of the views expressed may be found in the *American Anthropologist*, Vol. 29, No. 3.

² In a like manner the people of South Nias picked up the custom of tattooing from the natives of Mentawai who lived on the Batu Islands. The Niha visited these islands as traders, and would have been murdered had they not permitted themselves to be tattooed. (Schröder, 56)

³ Gold in Sanskrit is *kanaka* in Nias *kana'a*.

elaborate stone steps and pavements—a most unexpected feature is presented by the highly developed legal procedure of the people. The Nias customary law is very elaborate and involved, but no more so, perhaps, than that of the Ifugao Igorot. In Nias, however, the idea of a state has evolved and crimes are punishable no longer by the family or kin, but by the state. Among the Igorot there is no state, and procedure, however well regulated, is but one step removed from the primitive laws of blood revenge.

Legal procedure naturally is dependent on political organization. The political unit in Nias is the village, and these are divided among thirty-seven districts. Meetings for economic deliberation and the administration of justice are attended by the sib and village chiefs of each district.

"The organization into districts was not only necessary to prevent attack from without, but also to prevent head-hunting from within. Otherwise the people could not have worked the fields. Marriages between villages helped to create the districts. All the people of the districts came together at feasts. Along with the geographical divisions, the patrilineal blood bond is still kept up for the purpose of ancestor worship."

The population consists of chiefs, freemen and slaves. Between the first and the last two there is a great gulf. The chiefs are supposed to be in immediate connection with the tribal forefathers, who came from the heavens. Chieftaincy is in this way hereditary. But the necessary feasts must also be given for installation purposes. The chiefs are nothing else than the reincarnated forefathers while on earth, and the course of events on earth depend on them.

In the south the inheritance of the family rule, as well as that of chieftaincy, passed to the eldest surviving brother (*ama*, father or paternal brother). But in the north the eldest son obtains the right of inheritance by catching in his mouth the dying breath (soul) of his father. Wives, other than a man's mother, are inherited according to the rule of succession.

In the village administration of justice, important matters are talked over by a gathering of the burghers, called by the chief. The gathering takes place in the town square, or at the house of the chief.⁴ The meetings are to determine on the proper interpretation of the adat (customary law). Variations from the adat would bring the living in conflict with the dead, who would punish the people by

⁴ Not in the *bale*, a survival of the communal house, used in Nias for religious purposes.

bringing strife and disease into the world. In the chiefs were thus united lawgivers and upholders of the law. The people could exert influence through their foremost men, but the decisions lay in the hands of the chiefs. A difference was made in Nias between criminal and civil misdeeds. In criminal matters, the affair was an infringement against the adat, and hence against the community. In former times criminals were invariably punished by death. Fines levied reverted to the chiefs, the village, and the injured parties. Doubtful cases were settled by oath and ordeal. The classification of crimes was as follows:

1. Crimes against the forefathers (i. e. the adat.)
2. Crimes against the authority (the chiefs.)
3. Crimes against persons.
4. Crimes against property.

Punishments were capital, corporal, fine and slavery (where fine could not be paid).

The mythology of Nias is elaborate, but it does not show traces of Hindu influence. Lowalangi is thought of as the god of the upper world, and Latura of the lower. According to the various creation stories, they are brothers. Lowalangi appears to be a Polynesian word, meaning "long heavens." Like other Indonesians, and again like the Polynesians, the people of Nias believe in multiple heavens. They believe in either nine layers, or nine above the earth and nine below. Lowalangi is said to be the god of the winds, because he awoke the people to life by blowing wind on them.⁵ In the north district, and also in the central, one finds the conception that people are pigs kept by the gods. A person first dies when his soul (*noso*, breath), given by Lowalangi, is finished, and, at the same time, it is believed that death results because Lature has need of such a human being for his meal. However important these two gods are in myth, they do not enter into the Nias cults, and receive no sacrifices.

⁵ As elsewhere, scientists with a "purpose" have made out of Lowalangi an "All-father." Thus the missionary Chatelin writes, "Er (Lowalangi) hat Macht über Leben und Tod, Segen und Fluch, Reichtum und Armut; er stellt Könige an und setzt sie ab; er ist allmächtig, allwissend, allgegenwärtig und ein Bestrafer des Bösen." There is as little truth in this rhapsody as there is in another statement, taken originally from a similar source, that the Mentawai *Tai-ka-manua* is a good spirit, who made everything including the first people. No authentic creation stories have been recorded in Mentawai. Furthermore the word "*tai-ka-manuna*" means "*those* in the sky" and refers to sky spirits. (Schröder, 502, 466.)

Two further beliefs are of interest, as they are likewise found in Polynesia. One is the idea that the heavens formerly stood much nearer, so that the lower heavens could be touched by the tops of the roofs. This belief is also found in northwest Borneo. In Polynesia it is Maui who raises the heavens. The second similarity concerns burial customs. In Nias the mourners look for a little spider on the grave of the dead. This contains the soul, and is applied to the idol of the dead. In Samoa the soul was thought to return as an insect which had to be wrapped up in tapa and buried with the dead.⁶

There has been much difference of opinion concerning the soul idea in Nias. According to Schröder the normal man of Nias is divided as follows:

(1) The body stuff, *boto*. After death the body, except for the bones, is thought to dissolve into water and air.

(2) The life stuff, *noso* or breath. This goes back to the gods. Even the wooden idols, *adu*, are said to have *noso*.

(3) The *lumolumo*. By *lumo* the person of Nias does not understand only the shadow, but also the image as seen in water. This is thought to be a second person, an "ego" outside of the body. This is the soul that leaves the body and travels in dreams and in sickness.⁷

A person is dead (*mate*) because the *noso* has left the body. There is no more *lumolumo* now. The second, or ghost, of a dead body is a *beghu*. This *beghu* is formed from the likeness of the person as seen reflected in water during life. The actual shadow, however, goes to the underworld.

The causes of sickness in Nias are: (1) The absence from the body of the *lumolumo*. (2) The harming of the *lumolumo* (or the person himself?).

The *lumolumo* can be taken away from the body by Lowalangi (in South) or Lature, by evil spirits or by ghosts. Curing consists in sacrifices and in catching the *lumolumo* in a cloth and applying the cloth to the head of the patient. This is done by the shamans.

E. M. LOEB

⁶ E. M. Loeb, History and Traditions of Niue. B. P. Bishop Mus. Bull. No. 32, 89, 1927.

⁷ In Pageh, Mentawai, the soul that travels in sickness and dreams is called *simagere*. The soul that leaves at death is called *ketsal*. But the *sanitu* or ghost is a thing apart from either.

History and Traditions of Niue. EDWIN M. LOEB. (Bernice P. Bishop Museum Bulletin 32.) Honolulu, Hawaii, 1926. 225 pp., 13 pls., 5 figs.

The addition of a new monograph in Polynesian ethnography to the Bishop Museum series must be hailed with enthusiasm by all students of Oceanic ethnography and comparative ethnology. Research in the Polynesian field is becoming progressively easier with the issuing of each new publication as for island after island one scientifically trained authority is substituted for some twenty old authorities of contradictory and questionable views. This record of Niue culture is of particular interest to students of central Polynesia as the Niue social organization presents a more striking contrast than even the Samoan to the priestly and chiefly hierarchies of other parts of Polynesia. With the rapid disappearance of native culture which is taking place everywhere in Polynesia continually threatening us with irreplaceable losses, we must be particularly grateful to Dr. Loeb for his extensive researches in Niue.

Aside from its importance as an attempt to bring together between the covers of one book a systematic account of all that is known concerning Niue ethnography, Dr. Loeb's work raises two questions: the adequacy of his method of presenting the bulk of the material in translated texts from a selected group of informants as a means of giving a complete picture of the native culture, and second, the validity of the type of evidence upon which he bases his historical conclusions.

The use of text material with exceedingly sparse comment interspersed—while giving rising to numerous slight errors, as when the Niue folk-etymology of the Samoan word *papalagi* is given without qualification and the not obvious fact that it is a folk-etymology is only mentioned some hundred pages later—is a highly effective means of presenting native attitudes, motivations, and emphases. The texts, dealing with revenge, causes of feuds, punishment of adultery, etc., illustrate this method at its best, while the sketchy discussion of the preparation of food, from which it would be impossible either to prepare the dishes mentioned or to compare the particulars with methods of cooking on other islands, emphasizes its worst drawbacks. The presentation of supporting text material for many of the statements gives a valuable check upon the bases of generalization employed and so accomplishes in somewhat more cumbersome fashion the result which Dr. Handy obtained by the use of the anecdotal

method. Possibly the desire to use native accounts whenever possible, together with the inevitable unevenness of material gathered at such a late date, may account for the great disparity between different sections of the monograph. The treatment of material culture is practically negligible and would better have been omitted. And a topic like taboo upon which it is so desirable to have material well assembled for comparative purposes, is inexcusably slighted, and not for lack of material, for much additional information on taboo may be gleaned from discussions in other parts of the book. There are also numbers of slight references like the one on page 184 to a "guardian spirit" which will interest only to baffle the comparative student. On the other hand, parts of the material are treated very fully, as in the presentation of chant material connected with some of the ceremonies.

The relationship of Niue to Samoa and Tonga is of the greatest interest in an attempt to reconstruct central Polynesian history. This monograph provides many of the raw materials but makes no systematic attempt to deal with the question, such as that made by Dr. Linton in his comparative study in connection with Marquesan material culture. The analogues which Percy Smith ("Niue Island and Its People," J. P. S. Vols. 11 and 12) points out between Niue and Moriori culture, in the absence of tattooing and circumcision and the occurrence of canoe burial at sea, are ignored completely, as is Smith's discussion of the parallel between the *Patu-iki*, the sacred king of Niue, and the sacred king of Mangaia. The presence of Samoan missionaries in Niue since early Christian times has introduced a special source of error in making Niue-Samoan comparisons; against this danger Dr. Loeb has taken repeated and possibly too full precautions. This is the case with insect burial. In Samoa an insect was collected *in lieu of* the body of a deceased person and buried in its stead; in Niue the insect was collected *beside* the corpse of important persons and buried with the body. With such divergence in basic conception, it is hardly safe to assume this practice as a post-Christian introduction into Niue by Samoan missionaries. On the questions of rank and social organization, chiefs' language, types of taboo, analogous ceremonies such as the *Fakalofa* of Niue and the *Talolo* of Samoa, the material is too scanty to warrant drawing any definite conclusions. The picture of Niue culture as drawn by Smith presents a somewhat closer alliance with the Samoan than that drawn by Dr. Loeb. Whether the cultural affiliations are closer with Tongan

or with Samoan cannot be determined even provisionally until the publication of the Bayard Dominick Expedition's work in Tonga.

Dr. Loeb regards Niue culture, in which he singles out for special treatment the dual endogamous social organization and the institution of a sacred king with rain-making functions who could be killed for neglect of his religious duties, as the result of different migrations to the island. He quotes Percy Smith's earlier hypothesis in which a first migration from Samoa is placed at about 700 A.D., a second from Tonga in the first half of the 16th century and a third Tongan migration in the 17th century. Although these quotations from Smith are rendered with a minimum of comment, Dr. Loeb apparently agrees with Smith as to the hybrid nature of the culture, the attribution of the moiety division to separate migrations and the importance of the last Tongan migration, which he believes to have introduced the sacred kingship as an imitation of the Tu Tonga, and the custom of drinking kava.

These attempts to reconstruct the history of Niue bring up the whole question of the use of traditional material as historical evidence in Polynesia and especially in central Polynesia, where the absence of a priestly caste left both genealogies and traditions even more at the mercy of casual changes. As Percy Smith, using a method worked out on the basis of the incomparably more accurate Maori material, did before him, Dr. Loeb, after admitting that the Niueans are the most negligent among Polynesians in the preservation of their traditions, proceeds to use these same traditions as he sees fit. On such a basis he attempts to construct a plausible theory of the introduction of various cultural features on Niue. He accepts the story of the journey of one Matagigifale to Tonga, but admits that the story is incorrect in asserting that she made the voyage in a whale's belly. Conditions in Samoa illustrate with particular vividness the fallaciousness of this attempt to find a "kernel of truth" in mythology. In western Samoa it is customary to attribute many cultural features to borrowing from Fiji, while in eastern Samoa, in the Manu'a Archipelago, legend always insists upon local origins. When the culture feature so diversely accounted for is shared with most of the islands of Polynesia, the historian is forced to reject the Manu'a explanation, while the western Samoan explanation looks as if it contained a "kernel of truth." And yet there is no justification for believing that the western Samoans have better memories or a more rigid regard for historical accuracy than their eastern cousins, no

matter how often their mythology may happen to coincide with other types of evidence. When all cultural features of wide diffusion in Polynesia must have been introduced into any given island by some migration, large or small, early or late, and when the migration theme is so omnipresent in Polynesian mythology, these chance correspondences are disproportionately high and resultingly misleading.

To support his views as to the separate origin of the two divisions, Dr. Loeb advances the fact of slight dialectical and mythological variations, which he admits may be due to isolation, and a physical difference, apparent to the eye, as the physical measurements have not yet been analyzed. In trying to evaluate the conclusions reached by his predecessor, Percy Smith, on this same question, and to estimate the difference between the views of these investigators, the student is continually baffled. Dr. Loeb uses the occurrence of obsolete words as historical evidence, and Smith declared that the customary manipulation of the vocabulary in response to the dictates of the taboo system, makes such evidence unreliable. Dr. Loeb states, "there are no tapus on the use of names" and makes no reference to Smith's statement. He continually avoids taking direct issue with Smith, he quotes him extensively sometimes with concurrence, sometimes without comment, and as in this case of word taboos, he not only gives no reason for disagreeing with Smith but fails to mention the different opinion held by the earlier investigator. And yet so frequently does Dr. Loeb use Smith's material, that the reader is forced to read Smith's work in order to evaluate the conclusions which Dr. Loeb quotes. Although the theory advanced by Smith and more or less adhered to by Dr. Loeb is plausible enough, it leans too heavily on such insubstantial material as the story of Matagigifale's whale journey, and must await verification in terms of more reliable evidence.

Perhaps the most drastic theoretical statement in the monograph is that the present culture of Niue

gives us a picture of an archaic manner of living common at one time to all Polynesian peoples

and the assumption that the caste system, especially as related to divine chiefs, and the taboos against women were recent inventions in other parts of Polynesia, antedating the settlement of Niue. Dr. Loeb rejects the counter-hypothesis that the Niue culture may represent a simplified form of some more elaborate culture, due

perhaps to the early migrations having been made without well informed leaders. Conditions in Samoa, where half of the population of any given village would be incompetent to transplant their social organization in all its complexity to a new environment, suggest that such a loss of culture would have been very possible. Dr. Loeb rejects this hypothesis because it lacks historical precedent—hardly a sufficient reason—yet Mr. H. D. Skinner feels that the absence of priests and leaders well versed in the intricacies of their culture is the most suggestive explanation of the attenuated culture of the Moriori.

MARGARET MEAD

Ancient Hawaiian Music. HELEN H. ROBERTS. Bernice P. Bishop Museum, Bulletin No. 29. Honolulu, T. H., 1926.

This exhaustive study of ancient Hawaiian music, made under the auspices of the Hawaiian Legend and Folklore Commission, fills a long-standing gap in the ethnology of the Pacific region. Miss Roberts has used the same meticulous care in this investigation as one finds in her previous work.

The Introduction gives us a short history of the modern instruments, the ukulele and the steel guitar. This latter instrument it appears is the result of playful experimentation by a Hawaiian schoolboy. Accounts of the sources of material and the notation used in presenting musical examples conclude this section.

The book is divided into three parts: (1) Instrumental music (2) Vocal music, and (3) Geographical distribution of instruments and music like the Hawaiian.

In the first of these sections are included careful descriptions of specimens that have been examined, and a review of the literature of the instruments. The instruments discussed are: (a) strings; ukeke, (b) winds; nose flute, gourd whistle, ti leaf whistle, conch, bull-roarer, Hawaiian Jew's-harp, bamboo tubes, (c) percussion instruments; wooden kettle-drum, coconut drum, calabash drum, bamboo pipes, sticks, footboards, castanets, and rattles of various kinds. Ukeke and nose flute tunes are illustrated.

Introducing the section on vocal music is a short discussion of native poetry or meles, which form the basis of the chants. Several of these are published in Hawaiian, and in the preface the author mentions that a great number of additional examples are on file. It

is unfortunate that these melees could not have been translated, and yet they would have lost much in the translating.

The major part of the book is given up to analyzing and recording the vocal music. Perhaps the best characterization of this music is set forth in this interesting quotation.

In the vocal music a peculiar situation arose, evidently at a very early time. According to the general descriptions of travelers who had the advantage of visiting the islands while they were practically untouched by outside influences, there was no singing as we understand the term. Instead of more or less free, spontaneous melody which could be appreciated for its own sake even though associated in the minds of the singers inseparably with the words, and which could express beauty apart from the manner of rendition, there was merely an intoning or chanting on two or three pitches as principal tones, so that the resulting melody was at best rudimentary and monotonous. . . . The expression of emotion as set forth in the text was supported by the melody only inadequately, by the general character of the movement of the piece, although not necessarily, or by the swelling or diminishing volume of the voice and its quality, but not invariably, and was regularly achieved only by the facial expression and gestures of the singer. Even these were more or less prescribed and set in their form and were used over and over again.

The chants may be divided into two sorts: (1) the "oli" which is fairly well described by the English word recitative, and (2) the "hula" under which designation

fall all those chants which might be described as adapted to dancing purposes, and, generally speaking, less formal in character

Olis are divided into two groups according to the method of chanting. The hulas are divided into sitting, animal, gesture, instrumental and standing hulas, and those used for various performances. Under each heading many examples of the words and music of the chants are given, all of which are discussed in the text. Discussion of part singing, modern olis and modern hulas are also included.

The third section mentioned above, i.e., geographical distribution, concludes the book. The author points out that

this chapter is admittedly but a preliminary survey upon which I hope to enlarge at a future time.

In spite of this admission seventy pages are filled with a discussion of the distribution in the Pacific region and other parts of the world of the instruments described in the first chapter. Four charts aid in making clear the author's hypothesis of distribution. A bibliography of 187 titles is published.

Considering the excellence of the subject matter and its treatment the typography of the work is a disappointment. The musical plates, with the exception of No. 141 on page 293, have apparently been drawn by an amateur not only in drafting but also in music. This is evidenced by the footnotes added by the author to the plates throughout the book, making corrections in the musical notation and lettering. On many pages typographical errors may be found with little searching. The illustrations on the five plates bound at the end are crudely arranged. These criticisms should be directed toward the publishers, rather than toward the author.

C. M. LOUTTIT

YALE UNIVERSITY,
INSTITUTE OF PSYCHOLOGY.

AFRICA

The Use of Stilts, especially in Africa and America. K. G. LINDBLOM. (Riksmuseets Etnografiska Avdelning, Smärre Meddelanden, No. 3, Stockholm, 1927.) 40 pp., 12 figs.

In this paper Dr. Lindblom gives a useful distribution map for African stilts. He is greatly impressed with the concomitance of masks and other ritualistic associations of stilts in Africa; he inclines to the view that the mystic significance was primary, the sportive or practical use of stilts being interpreted as survivals. However, the author is loth to disregard altogether the utilitarian aspects of the contrivance, which he illustrates by European examples, such as that of Carniolan peasants fording streams. His final suggestion that geographical factors should be considered stresses the rival interpretation on technological lines. In the reviewer's judgment the technical problem can hardly be ignored in discussions of ultimate origins. The occasional loss of a mystical context is plausible enough; but it is likewise possible that the ritual association, though earlier than *some* instances of secular use, has elsewhere been engrafted secondarily upon practical or sportive utilization.

Of American stilts, Dr. Lindblom derives some from negro slaves, but points out their pre-Columbian occurrence in Yucatan. On this continent, too, the joint occurrence of masks and stilts is treated as significant.

Apart from the oft-cited case of the Landes in southwestern France, the author finds that stilts occur in various parts of Europe

from ancient Rome to modern Sweden. In Asia their presence is attested for the Philippines, Celebes, Japan, and India, and in Polynesia for Tahiti, the Marquesas, the Hervey islands, and New Zealand.

On Tahiti I am able to offer a few supplementary remarks. A reference that has escaped Dr. Lindblom seems worthy of citation:

Les autres jeux d'enfants sont les échasses (*rore*) qui se composent de deux pièces: un bâton sur lequel est solidement lié, à 50 centimètres de terre, un morceau de branche coudé.¹

In July, 1925, the reviewer chanced upon a group of Tahitian boys in the outskirts of Papeete who were engaged in a stilt-game. Two boys about ten years old, though for a few minutes one of them was relieved by a somewhat older player, were walking on stilts about $4\frac{1}{2}$ feet in height, the footrest, which was tied on, being but 2 feet above the ground. Each player kicked with one stilt against his adversary's, thus trying to bring him down. At times a badly aimed thrust would produce the ludicrous result of making the player turn his back to his opponent.

Dr. Lindblom does not assume a single origin "when it is a question of implements so easily invented as stilts." However, he entertains the hypothesis as at least tempting that Oceanian and American stilts go back to a common origin.

ROBERT H. LOWIE

¹ P. Huguenin, *Raiatea la sacrée*, Neuchatel, 1902, p. 143 (with text figure).

PHYSICAL ANTHROPOLOGY

Rasse und Körperbau. FRANZ WEIDENREICH. Berlin: Julius Springer, 1927. 187 pp., 201 ill.

The concept of bodily constitutional types goes back to the Greeks and has had its principal recognition in the field of medicine. Of late it has been developed in connection with psychiatry and certain lines of inexact or popular psychology. In the most recent years constitutional types have begun to be taken cognizance of by physical anthropologists, partly under the influence of sister disciplines, partly, it may be suspected, as a relief from the relative sterility into which the study of races has got itself. The concept of type obviously cross-cuts that of race, and therefore holds out a promise of new results. Weidenreich's monograph opens with the

sentence: "This book is of strictly scientific nature." It therefore deserves serious consideration, in itself and as a symptom of trend.

Two principal constitutional types are recognized, the Leptosome and Eurysome: one narrow, long, slender, delicate, the other broad, short, thickset, heavy, and rugged. Essentially Leptosome and Euroysome traits respectively characterize the Phthisic and Carcinomatous types of Beneke, the Asthenic and Apoplectic of Stiller, the Microsplanchnic and Macrosplanchnic of Viola, the Respiratory and Digestive of Sigaud, Chaillou, and MacAuliffe, the Hyperontomorph and Mesootomorph of Bean, the Asthenic and Pyknic of Kretschmer, the Lineal and Lateral of Stockard, the Leptoprosopic and Chamaeprosopic of Kollmann.

Weidenreich shows that these two types appear in both sexes and in all races. They are the fine or Choshui and the coarse or Satsuma type in the Japanese; the Aryan or Assyroid and the Negritoid elements among the Chinese according to Legendre or Mongolian and Malayan according to Hagen; the narrow and broad-nosed Papuans; the Hamitic and Asiatic strains in Egypt; the pure Nordic and Cro-Magnon in northern Europe; the Sephardic and Ashkenaz among the Jews. In virtually every case the attempt has been made by the determiners of these types to derive them from separate ethnic, that is, racial, origins. Although such theories have had little support from conservative anthropologists, they have enjoyed some vogue, and Weidenreich's analysis will be welcome for definitely eliminating these speculations. He shows that individuals of corresponding types occur among Negroes, American Indians, Polynesians, Australians, Veddas, and probably every population.

Sigaud's Muscular and Kretschmer's Athletic type are disposed of as functional variations of normal types. The Cerebral type is valid to the extent of being a characteristic cephalic variant of both Leptosome and Eurysome. It is associated with brachycephaly. So far as the data go, there have been no true dolichocephals among the greatest German intellects.

The Leptosome and Eurysome types are traceable in fossil man, in the Primates, and in domestic animals. (Wheeler has recently shown them in insects.) They represent extremes of form of growth, porbably more or less hereditary; the causes of the origin of the types are obscure. Type and race traits per se are not distinguishable; it is the combination of traits, and their prevalent recurrence within a population, that makes them racially significant.

Weidenreich thoroughly keeps the promise of his first sentence. The subject of types will probably be considerably exploited in the next few years. His work shows that it can be treated without recourse to half-evidence, loose definition, or fantasy.

A. L. KROEBER

Publications by R. B. BEAN:

1. *The Two European Types*. Amer. J. of Anat., vol. 31, no. 4, 1923.
2. *The Three Anatomic Types of Africa*. Amer. J. of Anat., vol. 33, no. 1, 1924.
3. *Types of Man in the Yellow-brown Race*. Amer. J. of Anat., vol. 35, no. 1, 1925.
4. *Types of the Three Great Races of Man*. Mer. J. of Anat., vol. 37, no. 2, 1926
5. *Human Types*. Quarterly Review of Biology, vol. 1, no. 3, 1926.
6. *Some Anatomical Characters of the Mongoloid, a Hypomorph White Type*. Proc. of the 49th annual sess. Amer. Ass. for the study of the Feeble-Minded. Raleigh, N. C. 1925.
7. *Disease and Death Rate in Human Types*. New Orleans Medical and Surgical Jour., vol. 69, no. 3, 1916.
8. *Notes on the Weight of Some Vital Organs, their Development, Variability and Relation to Disease. A Summary*. Virginia Medical Monthly, Feb. 1926.
9. *Die Morphologie und die Erkrankungen des Menschen*. Zeitschrift f. Konstitutions-lehre, Band 9, Heft 5, 1924.
10. *The Pulse of Growth in Man*. A preliminary report. Anat. Record, vol. 28, no. 1, 1924.
11. *Remarks on Teaching Anatomy*. Anat. Record, vol. 21, no. 4, 1921.
12. *A Vital Problem in Medical Education*. Virginia Medical Monthly, Dec. 1920.

Dr. Bean in the first six of the pamphlets listed above has described his classification of human types. According to Professor Bean the various races of man can all be considered as conforming to his three types. These are the hypermorph, mesomorph and hypomorph. The hypermorph is tall or short depending on which pamphlet one reads, with long narrow trunks, long narrow noses, ears, and long hands and feet. The mesomorph is of medium stature, broad and bulky in trunk. The hypomorph has a high sitting height

index, short arms and legs and short, broad noses, ears and broad hands and feet.

This is too short a review to point out all the discrepancies and wild speculations in which the author has indulged himself. The logical necessity of proof for the thesis or better, description of these types does not apparently occur to Dr. Bean, who perhaps fancies that a few tables listing the characters or measurements of what he considers typical representatives is sufficient evidence that all mankind may be divided into three parts: the hypermorph, the mesomorph and the hypomorph. Dr. Bean also resurrects Stockard's hypothesis that the linear or hypermorph is a seacoast type and that the lateral or mesomorph is found in the interior. To the author the Neandertal man was a mesomorph who developed into a hypermorph through migration to the Baltic and Mediterranean, where differentiation and isolation produced the Nordic and Mediterranean.

In the next three pamphlets the vital organs are considered from the point of view of the classification adopted by the author. Disease is also believed to be dependent upon these types. The last two articles deal with methods of teaching anatomy and the necessity of maintaining a supply of cadavers for medical schools.

H. L. SHAPIRO

AMERICAN MUSEUM OF NATURAL HISTORY
NEW YORK CITY

Brains of Rats and Men. A Survey of the Origin and Biological Significance of the Cerebral Cortex. C. JUDSON HERRICK. Chicago: University of Chicago Press. 1926. XIII, 382 pp.

By a consideration of the known data from the several fields of anatomy, biology, and psychology, the author attempts an evaluation and a systematic determination of the functions of the cerebral cortex. In the first several chapters he considers the anatomical growth of the cortex throughout the animal series as a basis for his later discussions. The cortical anatomy of rats and of men receive the most extended treatment because it is these two animals about which we have the most extended series of experimental observations with regard to their reactions.

In the first chapter, Herrick considers in a very interesting statistical fashion the potential cortical combinations that are present in the human brain and he finds that they are more than sufficient for any theoretical explanation of all cortical functions. The functions

of the cortex are then contrasted with the lower centers in the brain stem and in the thalamus and corpus striatum. These lower centers form the anatomical basis for our mass reflexes and more generalized reactions to stimuli while the primary function of the cortical centers is the analysis of many different systems and then their regrouping in a very wide range of different efferent pathways. The difference between these two types of function is strongly emphasized. The third and fourth chapters are concerned with tracing the development of the lower centers and of the cerebral cortex from the fishes to the human types correlated with the increasingly complex behavior patterns of the ascending series.

In a consideration of the cortical anatomy of the rat, Herrick considers at great length the experimental findings of Lashley on the retention of learned reactions and of their relearning after extirpation of very considerable cortical areas. These results lead Lashley to reject entirely the theory of definite cortical localization and have led Herrick to strongly modify his earlier views in this respect. Herrick's final conclusions with regard to the rat are summarized as follows (p. 191 f.)

. . . . It is clear that the cerebral cortex of the rat is structurally diverse in its different parts and that this diversity of internal organization is correlated, at least in part, with differences in the subcortical connections of the different fields. . . . The rat possesses very little cortex outside of these ill-defined projection areas.

With regard to Herrick's modification of view with regard to strict cortical localization, the following sentence summarizes his new position: (p. 194)

The experiments do show less sharply defined mosaic localization of function than had often hitherto been supposed. But this is very far from 'complete functional interchangeability of all parts,' which is *a priori* improbable and is distinctly negatived by the experiments (Lashley's) reported.

The author concludes that, in the rat, the cortex is not necessary for the simple maze experiment but that it is necessary for the visual discrimination reaction.

Another function of the cortex besides that of correlation and reorganization of impulses is that of its inhibitory effect upon the action of the lower centers. This is partly specific and phasic, acting upon particular subcortical functional systems while these are in process and tending to depress all conflicting activities either by withdrawing available nervous energy from their apparatus of control

or by equal activation of agonist and antagonist systems with resulting stasis.

Several chapters elaborate these ideas in detail by a discussion of the functions of the different parts of the cortex. The prefrontal lobes, for example, form the anatomical basis for intentional control. But in apes and man it is possible to regain a considerable portion of this control after destruction of the prefrontal areas. This is merely considered as additional evidence that plasticity is the most distinguishing feature of the cerebral cortex. Herrick develops schematically the concept of secondary association centers in the higher types of brains and eventually the author conceives the human ability to form concepts, to use symbols and language and to make generalizations which can be projected into the future as the most uniquely characteristic difference of human behavior and that of all other animals lower in the biological scale.

The concluding chapters are rather more philosophical and speculative in character. In these Herrick strongly emphasizes the importance and function of human consciousness. The subconscious is for him merely intentional direction of the reorganization of conscious processes which are not consciously directed. The purposeful function of consciousness, the author believes cannot be denied. But consciousness is viewed as only one of a number of biological functions of the organism. The common sense view is to reject either of the philosophical doctrines of monism and to adopt some sort of a dualistic doctrine which involves some sort of a causal relation between mind and body. The cortex is also conceived as being the principal storehouse for "vital reserves" by means of which the effect of stimulation may be very much in excess of the energy of the stimulus.

The energies of the cortical reserves, however, released, tend to come to expression in orderly patterns depending on the structural organization at the moment of their discharge. (p. 324).

A chapter is given to a discussion of the nature and function of the "driving power of impulse." An excellent bibliography of the recent literature in the several fields and sciences studied of nearly 200 titles is appended.

The reviewer believes that this is one of the most important books in this field that has appeared for some time. Not only is one able to find summarized, in a very sympathetic manner, all of the known facts with regard to the localization of function in the cortex and

elsewhere in the brain, but one finds also a fine description of the analysis of human and animal reactions. One finds the interesting point of view, in the last chapter, that human behavior is not that of rats and of monkeys merely enlarged and complicated but that, with man the addition of insight and of intention makes the human reactions something new and puts them on an entirely different plane. No one interested in animal or human reaction or in the problem of the function of the brain and of the localization of special functions therein can afford to miss reading this book.

SAMUEL W. FERNBERGER

MISCELLANEOUS

Historical Aspects of the Immigration Problem. Select Documents.

EDITH ABBOTT. Pp. xx, 881. Chicago: The University of Chicago Press, 1926. Price, \$4.50.

As Miss Abbott states in the opening paragraph of her preface,

The documents in this volume have been selected to supplement an earlier source book in immigration published two years ago for the use of university and college students.

Had it not been for the wealth of available material and the quantitative limits imposed by publishers' standards, the historical phases of immigration would have been covered in the author's earlier work, entitled, *Immigration, Select Documents and Case Records*. It is evident that even two volumes have been hardly adequate for her purpose.

The selection of documents for inclusion in a source book must of necessity reflect the editor's personal opinions, no matter how carefully and scientifically materials are chosen or rejected, especially where the field is as great as that of the history of immigration from colonial times until 1882. Miss Abbott's first selection is an extract from a letter written in the spring of 1750; her last is from a speech delivered in the House of Representatives in April, 1880. In less than nine hundred pages she has presented two hundred and one documents which are intended to afford the student an opportunity to become acquainted through original sources with the causes of immigration, assimilation, crime, pauperism and other domestic immigration problems, and public opinion concerning the immigrant. Conditions in both Europe and the United States are considered. Naturally only a small fraction of the valuable materials

dealing with the above aspects of immigration are included, and these appear to be hand-picked and so arranged and explained that the reader may not be misled into following false prophets. Miss Abbott's ideas about immigrants and immigration are not difficult to discover by a casual perusal of her selections, but if they were, she would leave no room for doubt in her twenty-five or thirty pages of "introductory notes" which precede the five major sections of the volume. There is some question as to the purposes of a "source book," but certainly it should give the advanced student a chance to form his own opinions.

The documents dealing with immigrant crime are weak, possibly for the same reason that various other selections create the impression of weakness, which is that the facts had not been established in clear-cut fashion by the contemporary writers. The effect of the immigrant on the crime rate of the United States, as well as on wages, on standards of living, on pauperism, etc., is still hazy even in the minds of economists and social scientists, and most of the articles and letters reproduced in the work under consideration were not written by people from whom one would expect critical and unbiased analyses. It is perhaps desirable for the specializing student of the history of immigration to know the opinions of Franklin, Schurz, Jefferson, and others less famous, but one does not get cold uncolored social facts from such as these. Their opinions are always interesting, but not necessarily convincing as to the true state of affairs.

The series of which this volume is a part

has been planned primarily to provide adequate scientific material heretofore not available for the use of students in the Graduate School of Social Service Administration of the University of Chicago, and other institutions of the same kind.

Predigested source material is of doubtful value in the training of the graduate student. There is however some merit in presenting even predigested materials in a form more interesting, more stimulating and less dogmatic than the ordinary text-book, and that is what Miss Abbott has done.

The fact that Miss Abbott has made the immigrant a living person and his problems living problems through the collection in well planned form of contemporary letters, newspaper and magazine articles, essays, public documents, and the like, is sufficient to justify adding this volume to any social science library or to any reading list on immigration. If the truths about racial contacts are to become

a part of our students' thoughts it will be more largely through such works as this rather than through the old fashioned text which reeled off, parrotwise, facts and figures about aliens who seemed a purely academic creation and no relation to our ancestors or to the present day "hunky," "dago," or "wop."

DONALD YOUNG

UNIVERSITY OF PENNSYLVANIA

Primitive Trade: Its Psychology and Economics. ELIZABETH ELLIS HOYT. London: Kegan Paul, Trench, Trubner & Co., Ltd., 1926. 191 pp.

This book embodies in somewhat condensed form the author's theory of value. It is really a study of the psychology and philosophy of the market. As the author points out, the subject matter might apply equally well to anthropology, psychology, sociology, or economic history. Justification of the title *Primitive Trade* lies in the large number of illustrations of trading and bartering practices of primitive peoples as drawn from the literature bearing on the subject. The book is divided into four parts containing nine chapters, only the last four being particularly concerned with the facts of primitive trade.

Introduction of anthropological data rather than illustrative material drawn from the historical peoples is, according to the author, based on the realization that the latter have already swung into one particular line of development and thus do not afford the variety of examples necessary to convince. A study of economic behavior is, to the contrary, best illustrated by concrete examples drawn from primitive peoples who have been subjected to a wide variety of environment and circumstances. Behavioristic psychology is obviously of little value in studying the development of the market among primitive peoples. It is probable, too, that the behaviorists could not agree as to the import of the facts. In this connection, an interesting observation on page 8 gives one pause.

Anthropological science is young, and it is still possible to present evidence and get some support for almost any theory one likes.

In the introduction is pointed out the well-known fact that a people showing marked development in one direction may be very backward in another. Attention is directed to the difficulty in drawing lines of correlation between economic development and social or political organization.

It will cause us no pain to discover little sense of relative values in otherwise well developed peoples, nor to find that the New Britishers, who wore no clothing whatever, had also what was perhaps the most highly evolved money economy of any primitive society.

The author agrees with Lévy-Bruhl that primitive man is irrational but does not follow him when he interprets this irrationality of conduct as essentially different in nature from our own irrationality or blunders in business dealings. Sentiment and the warring motives of human nature everywhere play tricks with man's economic better sense.

There is a distinct failure of the author to recognize prevailing differences in environmental control exercised by various primitive peoples. It is well known to anthropologists that many tribes without having either the stimulus of trade or a borrowed culture complex seem to know about all there is to know regarding the possibilities of their material environment. The author thinks that those tribes and peoples who have best developed their environmental possibilities were the more reasonable and that among modern economic peoples those cultures are supreme in which the whole people share. Mention is made, however, that the Inca civilization which knew no trade relations with other equally ranking cultures reached an equally high development with that of the Aztecs who had a well developed market system with well defined trade centers.

In the closing chapters are interesting discussions regarding the "emancipation of goods from their subjective attributes" under such captions as "the spiritual nature of ownership", "inviolable ownership"; "destruction of property at death"; "property marks"; "formalities and ceremonies in exchange"; "objective equivalence and money"; "the nature of money"; "standards of valuation among primitive men"; "gift giving", "sources of the market"; "the relation of trade and war"; "the institution of guest friendship"; "silent trade"; "differences among peoples in their attitude toward bargaining"; and, "the economic interpretation of history."

Two widely distributed practices among primitive peoples intimately associated with early expansion of trade are not discussed by the author. These are the practice of taking slaves from other tribes having a different culture background, and the intermarriage of individuals belonging to different tribes. To these two practices, which were fertile sources of knowledge concerning the goods and inventions of other peoples, must be added another, namely, the love

of travel and adventure often manifested by individuals of primitive political units. Such adventuring was perhaps in search of romance or it may have been undertaken to satisfy an active curiosity.

The author accepts the well authenticated principles recently developed by Kroeber and Wissler regarding traits pertaining to a culture center and to culture areas. These principles, along with that of the culture trait complex as first demonstrated by Jenks in his study of wild rice culture, find an increasingly wide application by writers in the social and economic sciences. These anthropological principles are expounded at considerable length but the author does not apply them as specifically as might be desired to the facts of primitive trade. Such application remains a monumental work still to be accomplished. It would have been a valuable contribution to the science of anthropology if the author had worked out in detail how trade relations enter into the making of trait complexes in any one culture area.

HERBERT W. KRIEGER

This is an essay in classical economic theory which happened to choose anthropological data as illustrative material. Its interest in primitive trade is subordinate to its interest in the growth of "economic rationality"; that is, as it puts it, the growth of utility as a measure of goods; or, as it may be said, the dominance of the hedonistic calculus. Its chief concern is with the development of the concept of economic value as expressed in a perfect price—many modern economic theorists limit themselves to a discussion of this concept and its ramifications—and its thesis was first written under the title, *Foundations of Economic Valuation*. Its purpose, the author says,

is simply to use the materials of anthropology as the best available means for a fuller understanding of economic value among ourselves.

In trade, which they regard as a contest of valuations, economists distinguish three psychological, or logical, processes. A man must want goods; he must be able to perceive of them in terms of the valuations of other goods; he must be willing to negotiate. According to the classical economists, men are now rational: perceiving these processes, they act so that they may secure the greatest return for the least outlay.

Formerly, Dr. Hoyt deduces from the evolutionary postulate, men were not thus rational.

As we have traced the development of economic value through the increase in wants, the objectifying of wants, and the expansion of trade we have seen that the process has been one of the gradual ascendancy of reason Men have grown more and more rational with the accumulation of culture.

It follows from the evolutionary dogma that the development of this rationality can be witnessed among primitive peoples. Dr. Hoyt has therefore diligently searched the reports of anthropologists for evidence. From her point of view she was successful: she has illustrated the psychology of the Manchester Man by some examples from Melanesia and elsewhere. But she has not given us a book on primitive trade.

It is doubtful whether Dr. Hoyt's preconceptions and method are fruitful for the study of comparative economics. She is not interested in the many existing forms of economic activity as examples of how peoples live. She is principally interested in *origins*, and like Bücher she assumes that the institutions and psychology of our industrial civilization can be traced back to early man, who, if he did not possess their opposites, had simple or rudimentary forms of them. Consequently, she slights the differences between economic systems and assumes that trade is trade, although it is carried on by peoples of different cultures in different economic environments.

MAURICE GREER SMITH

THE UNIVERSITY OF COLORADO

SOME NEW PUBLICATIONS

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ANTHROPOLOGICAL NOTES AND NEWS

SOUTHWESTERN ARCHAEOLOGICAL CONFERENCE

ON AUGUST 29-31, 1927, there was held at the excavation camp of Phillips Academy, Andover, at Pecos, New Mexico, an informal gathering of workers in Southwestern archaeology and related fields. There were present: C. Amsden, Southwest Museum; Monroe Amsden, Southwest Museum; Lansing Bloom, Museum of New Mexico; K. M. Chapman, Museum of New Mexico; H. S. Colton, University of Pennsylvania; C. B. Cosgrove, Peabody Museum of Harvard; Harriet Cosgrove; Byron Cummings, University of Arizona; A. E. Douglass, University of Arizona; Clara Lee Fraps, University of Arizona; Charlotte Gower, University of Chicago; O. S. Halseth, Arizona Museum; M. R. Harrington, Museum of the American Indian; E. L. Haury, University of Arizona; E. L. Hewitt, Museum of New Mexico; Walter Hough U. S. National Museum, National Geographic Society; A. V. Kidder, Carnegie Institution and Phillips Academy; Madeleine A. Kidder; A. L. Kroeber, University of California; T. F. McIlwraith, University of Toronto; H. L. Mera, Indian Arts Fund; Paul Martin, Colorado State Museum; S. G. Morley, Carnegie Institution of Washington; Frances R. Morley; E. H. Morris, Carnegie Institution of Washington; Ann A. Morris, J. L. Nusbaum, National Park Service; Frank Pinkley, National Park Service; E. B. Renaud, University of Denver; Oliver Ricketson, Carnegie Institution of Washington; Edith B. Ricketson; F. H. H. Roberts, Jr., Bureau of American Ethnology; Linda Roberts; J. A. B. Scherer, Southwest Museum; H. Shapiro, American Museum of Natural History; Leslie Spier, University of Oklahoma; Erna Gunther Spier; H. J. Spinden, Peabody Museum of Harvard; J. B. Thoburn, Oklahoma Historical Society; T. T. Waterman, University of Arizona; R. Wauchope, University of South Carolina.

The purposes of the meeting were: to bring about contacts between workers in the Southwestern field; to discuss fundamental problems of Southwestern history, and to formulate plans for coordinated attack upon them; to pool knowledge of facts and techniques, and to lay foundations for a unified system of nomenclature.

[A full account of the meeting has been published by Dr. A. V. Kidder in *Science* of November 18, 1927, page 489 sq.]

THE RAWSON-MACMILLAN ARCTIC EXPEDITION OF FIELD MUSEUM

WILLIAM DUNCAN STRONG, anthropologist of the expedition and a member of the staff at Field Museum of Natural History, in a report made public by the director of the museum, tells how the explorers have come upon the ruins of the house, the mining pits and the improvised shipyard of Sir Martin Frobisher, who, between 1576 and 1578, led three expeditions, two for gold, into the forbidding regions of Labrador and Baffin Land. Digging in the ruins, Dr. Strong has unearthed fragments of brick, plaster, coal and porcelain, products which he states undoubtedly were brought over from England, and are indisputable proof that the ruins are of European, and not native Eskimo, habitations.

Dr. Strong reports also having investigated what were believed by some explorers to be Norse ruins in Labrador and Baffin Land, but states all he has seen thus far are Eskimo in origin. Further search is to be made for evidences of a landing by the Vikings in the region.

Skeletons of three Labrador Eskimos from old stone graves, other contents of the graves, various specimens from ancient camp sites, and many specimens of Eskimo handiwork in bone and stone implements have been collected for the museum.

Dr. Strong is now making preparations for a trip during the coming winter. While other members of the expedition are working at the scientific station established at Nain, Labrador, he will go, with a native interpreter and a team of dogs, into the interior to mingle with and study the primitive Naskapi Indians. These tribes, of which little is known at present, are one of the most primitive of extant peoples. They are reported to be surly and untrustworthy and disinclined to welcome white intruders.

MR. ALLISON'S THEORY OF THE MOUND-BUILDERS

SOME OF THE CONCLUSIONS reached by Mr. Allison in his paper on "The Mound Builders: Whence and When" (*AMERICAN ANTHROPOLOGIST*, 29: 670-688, 1927) are amazing in view of the fact that mounds were piled up and used along the lower course of the Mississippi river and in the Gulf region generally down to the period of European colonization; inasmuch as the Indians of that section did, whenever they chose, and with no other implements than their stone tools and fire, clear new farm land; and inasmuch as one of the two principal reasons given by early explorers for the abandonment of Indian towns

was the exhaustion of the supply of firewood in the immediate vicinity. The apex of "Mound Builder culture," meaning by that the period when the great works of the Ohio valley, such as those of Circleville, Newark, Chillicothe, Hopewell, and Cahokia were constructed, must have been passed some time before the discovery of America, but the tribes responsible for them certainly were not chased out by forests.

JOHN R. SWANTON

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IN CELEBRATION of the 70th birthday of Dr. K. Gorjanovic-Kramberger the Craotian branch of the Wiener Bank-Verein, Zagreb, Jogoslavia is issuing an anniversary volume which contains articles by Hrdlička, Mollison, Pittard, Rutot, Schlaginhaufen, Sergi, Stolyhwo, and others. The price is \$4.00, paper-cover; \$4.60, cloth. Postage included.

THE SOURCE of the jade-like stone, nephrite, used by the Maya and ancient Mexicans for making ornaments, amulets, statuettes and other objects has been traced by Professor Ramon Mena, chief of the Department of Archaeology of the Mexican National Museum and De La Cerda, an engineer, to a mass of this rock at Zimapan in the State of Hidalgo.

It has long been known that nephrite was not true oriental jade but while many pieces, clearly derived from water-worn pebbles, existed in museum collections, the ultimate source of the mineral could not be determined. The discovery of Professor Mena and Mr. De La Cerda delivers a decisive blow against the theory that this "jade" is of oriental origin.

PROFESSOR F. W. NOTESTEIN of Cornell University has been appointed a fellow of the Social Science Research Council to study in London, Paris, and Geneva. The subject of his study is to be: A Critical Study of European Occupational Mortality Statistics.

AN ENGLISH ANTHROPOLOGIST, L. S. B. Leaky, who has been conducting extensive excavations in Kenya Colony, brings back with him a budget of extremely puzzling skeletal remains but refrains for the present from offering any answer to his own riddles. Most of the bones he found at his two principal working locations, Mr. Leaky states, were badly broken, but he did find at least one skeleton in nearly perfect condition, and several good skulls. The skulls are

most extraordinary. They do not resemble the skulls of the Negroes now inhabiting the locality at all, and they are very little like any Negro skulls, except that they are very narrow for their length. Their faces, however, are high and narrow instead of being short as typical Negro faces are. One of the most notable characteristics that marks these skulls as non-negroid in aspect is the very narrow nose-opening.—*Science*

THROUGH AN ORDER just issued by the U. S. Department of the Interior, archaeological work in the national parks is to be further coordinated under the direction of Jesse L. Nusbaum, recently appointed archaeologist of the National Park Service. It has been announced that in the future permits for excavating must first be approved by the division having immediate charge of the particular territory, then by the Secretary of the Smithsonian Institution and finally by the park archaeologist, before the Department will issue the necessary document.

DR. GEORGE GRANT MACCURDY, of Yale University, has been chosen as one of the seven foreign patrons of the newly established Prehistoric Society of Morocco. Dr. MacCurdy returned to New Haven in October after a summer in Europe directing the work of the American School of Prehistoric Research.—*Science*

DR. BRUNO OETTEKING, of the Museum of the American Indian, Heye Foundation, spent the summer of 1927 in Europe, where he attended the opening of the Kaiser Wilhelm Institut für Anthropologie and the sessions of the Institut International d'Anthropologie in Amsterdam.

IN HONOR OF FATHER P. W. SCHMIDT'S 60th birthday, Dr. W. Koppers, editor of "Anthropos" has prepared an anniversary volume with the collaboration of many of Father Schmidt's colleagues and students in both America and Europe. Among the contributors are Dr. Abbé H. Breuil, Dr. John M. Cooper, Dr. P. M. Gusinde, Professor Fr. Hommel, Professor E. von Hornbostel, Dr. K. Krohn, Dr. A. L. Kroeber, Dr. W. Lehmann, Dr. R. H. Lowie, Dr. O. Menghin, Dr. A. W. Nieuwenhuis, Dr. H. Obermaier, Dr. P. H. Pinard de la Boullaye, Dr. K. Th. Preuss, Dr. P. Rivet, Dr. U. T. Sirelius, Dr. A. Trombetti, D. C. C. Uhlenbeck.

The volume which is estimated between 700 and 800 pages will be sold at the special price of 25 marks (cloth), 22 marks (unbound),

if ordered before February 1, 1928. Subsequently the cost will be 35 and 32 marks respectively.

ACCORDING TO THE OCTOBER 1927 issue of *El Trabajo*, published in Popayán, Colombia, Professor Schuller has discovered a valuable manuscript in Dr. Guillermo Valencia's library. It is entitled "Vocabulario de la lengua propia de los indios que poblan los ríos Putumayo y Caquetá a solicitud del Colegio Apostólico de San Diego de Quito." The vocabulary comprises over a thousand native words with Spanish equivalents, also grammatical notes. Dr. Schuller is planning publication in Spanish and either German or English. Apparently the author's name is Juan Francisco Matha y González. He does not give any name to the language recorded by him, but Dr. Schuller identifies it as a member of the Betoya stock.

THE VEXED QUESTION whether Neanderthal man appeared in Britain before or after the glacial period is now considered settled in favor of the earlier date, according to J. Reid Moire. Mr Moire is chairman of a committee of scientists appointed to examine the clay beds at Hoxne, Suffolk, which have yielded large numbers of implements made by Neanderthal man. The structure of the beds, as pieced together from many excavations, shows a thick layer of glacial boulder clay, indicating a long period of intense cold, above the stratum in which the most primitive man-made implements of this locality are found. Overlying this glacial layer was a second bed containing stone tools of the Old Stone Age, but of a more advanced type than the first. Then another deposit of the type laid down during cold times, and finally the present ground surface, beneath which were found relics of the New Stone Age. The intervention of two cold-period beds above the level of the earliest implements is regarded as conclusive evidence of glacial man in Britain.—*Science*

PROFESSOR CHARLES E. DECKER, paleontologist of the University of Oklahoma; Professor Leslie Spier, head of the department of anthropology, and Dr. Chas. N. Gould, director of the Oklahoma Geological Survey, recently visited the gravel beds near Frederick, in southwestern Oklahoma, which have recently yielded human artifacts found in connection with mammalian bones of early Pleistocene or late Pliocene age. The party was successful in discovering a section about three by five feet in size of the top part of the carapace of the ground sloth, *Glyptotherium*.—*Science*

Nature states that in the course of the Congress of the Institut International d'Anthropologie, which was held at Amsterdam from September 20 to 27, it was announced that the Prix Hollandais of the Institut had been awarded to Miss Dorothy A. E. Garrod in recognition of her work in prehistoric archaeology, and especially for her excavation of the cave at the Devil's Tower, Gibraltar.—*Science*

THE Kaiser-Wilhelm Institute for Anthropology was inaugurated in Berlin-Dahlem on September 15. Professor Eugen Fischer, the director of the new institute, outlined the program. In addition to the anthropological department, there are others devoted to heredity and eugenics.—*Science*

DR. ALEŠ HRDLÍČKA, of the U. S. National Museum, sailed on October 1 for Europe, where he will examine the newest finds of early man in several countries and visit the type sites of Neanderthal man. On November 8 he will read his address, following the award of the Huxley medal to him for important contributions to American anthropological science.—*Science*

FIRST EVIDENCE that Scotland was inhabited by cave men in the Old Stone Age has been obtained as a result of excavation in caves of northern Scotland. James E. Cree, who directed researches in four cases, under a grant from the Royal Society of London, has reported the discovery of two human skeletons in connection with bones of bears and other animals of frigid climates. Further evidence of man's occupation of the caves in ancient times was found in a lower level of gravel containing antlers and bones of reindeer together with tools of reindeer horn, antlers cut and scratched by human beings, and bits of charcoal which showed that fires had been burning. These finds are the first indication that there were any human beings in Scotland as far back as the Paleolithic Era, which ended some 10,000 years ago. Mr. Cree's researches have disclosed the first bones of cavebears and arctic foxes to be found in Scotland.—*Science*

H. D. SKINNER, of the department of anthropology of the University of Otago, Dunedin, New Zealand, after visiting various institutions in the United States, such as Yale and the University of California, and participating as guest in the Pueblo Bonito Expedition of the Smithsonian Institution, has recently returned via Honolulu.—*Science*

THE LOGAN MUSEUM of Beloit College, Beloit, Wisconsin, is preparing to issue a series of bulletins, the first one to appear about the end of the current year. It will be on the "Men of the Aurignacian and their Culture."

DR. FREDERICK STARR, professor emeritus of anthropology at the University of Chicago, gave a series of four illustrated lectures on Japan at the university during the week beginning November 14, 1927.—*Science*

THE ACADEMY OF SCIENCES of Vienna is subsidizing the publications of the late Professor Rudolf Pösch's investigations in New Guinea, Australia, among the Bushmen of Kalahari, and in war prison camps. Series A will include studies in physical anthropology; series B, ethnographic, prehistoric, and linguistic material. The first volume of Series A is announced under the title of "Eine morphologisch—anthropologische Studien, durchgeführt an 100 westafrikanischen Negern," (1 map, 19 figs., 60 pls.) by one of Pösch's assistants, Dr. Josef Weninger. The subscriber's price is 67.50 M, as compared with the regular price of 90 M; and subscribers to the first volume will be entitled to a corresponding reduction in the future.

UNDER THE EDITORSHIP of Dr. H. Kunike the Hugo Bermühler Verlag in Berlin-Lichterfelde is publishing a popular anthropological monthly, *Der Erdball*. The articles in two sample copies sent to us are brief and well illustrated. Though physical anthropology is represented, most of the contributions are ethnographical, and all main areas of the world are dealt with.

THE NATIONAL MUSEUM OF CANADA

MR. D. JENNESS, Chief of the Division of Anthropology at the National Museum of Canada, Ottawa, spent the summer in Newfoundland seeking remains of the extinct Beothuk Indians. After a brief visit to Badger's brook and Red Indian lake he explored the coast and islands from the Bay of Exploits to Canada Harbour, visiting every place that was known to have yielded Indian remains. On Long Island, in the Bay of Exploits, he discovered an untouched grave that contained the skeleton of an old woman, part of a second cranium, and many of the carved bone ornaments that were peculiar to Beothuk culture. A second set of these ornaments was obtained from a cave near Triton island; and an interesting collection of

stone arrowheads, knives, celts, etc., was secured from fishermen at various places along the coast, who had dug them up when planting and harvesting their potatoes. Large numbers of such specimens have been unearthed during the last fifty years, but the great majority were unfortunately either thrown away or given to stray tourists.

The specimens that were brought back to the National Museum throw an interesting light on the early history of the Beothuk and of their Eskimo neighbors to the north. The Beothuk hunted seals in the open sea with retrieving harpoons, an art they undoubtedly learned from the Eskimo. Their harpoon-heads, however, were not modelled on those used by the Eskimo of the present day, but on others that have recently been discovered in old stone houses around Hudson strait, Hudson bay, Baffin island, and one or two other places in the eastern Arctic. Two years ago I described in the *American Geographical Review*, (15:428-437, July 1925) the peculiar Eskimo culture found in some of these ruins, naming it tentatively the Dorset culture. Some of its peculiarities there listed were

1. Harpoon-heads with rectilinear sockets.
2. Triangular arrowheads of flint, quartz or basalt (the typical Eskimo stone arrowhead has a pronounced tang).
3. Curved-edge knives of flint and quartz.
4. A curious style of engraving on bone, antler and ivory (see the last figure in that article).

Now the first three features reappear in Beothuk specimens, although the harpoon-heads with rectilinear sockets were not known in any other part of America; and the style of engraving distinctly recalls that on some of the Beothuk bone ornaments. It thus appears that the Beothuk were in close contact with these old Eskimo some time prior to 1400 A. D., and that there was a mutual borrowing of culture elements. At present we have no evidence that this ancient Eskimo culture reached as far south as the strait of Belle Isle, although from its presence in Hudson strait, and on the west coast of Labrador, I suspect that it extended for some distance down the east coast of that peninsula, perhaps even as far as Nain. On the other hand, what appear to have been Beothuk remains were discovered by Lloyd on the north shore of Belle Isle strait. It seems safe to conjecture, therefore, that several centuries ago the Beothuk were living somewhere in Labrador in close contact with Eskimo tribes now

extinct or absorbed by later comers, and that for some reason yet unknown (perhaps pressure from Montagnais and Naskapi tribes advancing from the west) they crossed over into Newfoundland. Such a theory will explain (1) some Eskimo features in Beothuk culture (2) the apparent absence of very ancient Beothuk remains in Newfoundland; and (3) some of the peculiarities of the Dorset Eskimo culture.

D. JENNESS

LEO STERNBERG

One of the leading Russian ethnologists, Professor L. J. Sternberg, died August 14 in Duderhof, a summer resort near Leningrad, in the sixty-sixth year of his age. He is survived by his widow and one son.

Sternberg was born in 1861 in Shitomir, southern Russia, where he graduated from the local classical gymnasium. After that he became a student of law in the Petrograd university. Being expelled from Leningrad for his revolutionary activities, he went to Odessa to continue his studies. There he was arrested. After spending three years in different prisons, he was exiled to Sakhalin island for ten years (1889-1899). There he studied the Gilyak, Ainus and Oroks. Later on he continued his ethnological studies on the continent, investigating the Gilyak and the Tungus tribes of the Amur region. For some time he was the unofficial editor of the newspaper of Vladivostok. Being permitted to return to European Russia, he had to go to his native city Shitomir and to live there under the surveillance of the local police without having the right to leave the city. Through the good services of the academician W. W. Radloff the writer of these lines, also a former political exile, obtained permission for Sternberg to come to the capital. He received there his degree of Bachelor of Laws, but after being admitted to the bar, he never practised as a lawyer. He followed his vocation of an ethnologist. He became Division Curator and soon Head Curator of the Museum of Anthropology and Ethnography of the Russian Academy of Sciences and corresponding member of the same Academy. It may be said that Sternberg together with the late Academician Radloff, Director of the Museum, built it up from a simple heap of ethnological specimens to a first-class scientific institution. He lectured on ethnology at the Geographical Institute and at the University of Petrograd (now Leningrad).

Sternberg was, like the English sociologist W. H. R. Rivers, an ardent adherent (with some slight modifications) of Lewis H. Morgan's theory of ancient society.

It is a pity that his administrative duties in the Museum, his work as editor of the Museum's publications, and his educational work in the university left him very little time to work out his most interesting notes on the ethnology of the Far East.

Sternberg published an article on the Gilyak (in the magazine *Ethnographical Survey*, Moscow); "Material on the Language and Folklore of the Gilyak. Part I, The Folklore of the Gilyak," published by the Russian Academy of Sciences, some articles and papers read at scientific congresses on questions of a general character, like "The Cult of Twins in Ethnology," "The Cult of Inau among the Ainos," "The Idea of Election in Primitive Religion," "The Cult of the Eagle among the Siberian Tribes" and many others.

We wish to express the desire that his field notes and lectures which exist in a manuscript form may be published by his relatives.

The writer lost in Sternberg a distinguished colleague and a faithful friend.

WALDEMAR JOCHELSON

In October, 1927, Mr. William Lloyd Warner, formerly a graduate student at the University of California, returned to Sydney after a seven months' stay on Crocodile island and Arnheim land, North Australia. The work was done under the general direction of Professor Radcliffe-Brown of the University of Sydney. Writing on November 9th Mr. Warner reports that he had collected data on the social organization and religion of a number of primitive peoples hitherto unknown to science and has been able to attend a series of native ceremonies. Mr. Warner is elaborating his results in Sydney and expects to resume work in the north next April.

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ETHNOGRAPHICAL NOTES ON THE BLACK CARIB (GARIF)

By EDUARD CONZEMIUS

INTRODUCTION

THE CARIB are found along the Caribbean coast of Central America from Stann creek (British Honduras) to the Black river (Republic of Honduras). A few families have spread northward as far as Yucatan and southward into Costa Rica, while there is a fairly large settlement at Pearl Lagoon (Nicaragua). At San Juan del Norte or Greytown, the outlet of the San Juan river, existed formerly a Carib colony, but during my visit there (1921-1922) only one family was left, the others having all returned to Honduras.

Their original home is St. Vincent¹ (one of the Windward islands in the West Indies), from which they were deported in 1796 by the British Government and landed on Ruatan island which is situated in the Bay of Honduras. Later they spread to the neighboring mainland. Today there is only one Carib settlement in Ruatan; it is called Punta Gorda and contains about 300 inhabitants.

The number of the Central American Carib is estimated at from 20,000 to 25,000. They seldom intermarry with other races and are increasing, while their kindred in the West Indies, who were known as "Island Carib," are approaching complete extinction.

¹ The island of St. Vincent was discovered by Columbus on January 22, 1498; this being according to the Spanish calendar the day of St. Vincent, the island was named in his honor.

In their own language the Central American Carib call themselves "*Garífuna*" or for short "*Garif*," which is a corruption from the Island Carib names *Calinago*, *Carinago*, *Calliponam*, and abbreviated *Calina*, meaning "brave people." Columbus corrupted these names into *Caribales* which in turn has become *Canibales*. The term "Carib" was first used by Peter Martyr in his famous history, which appeared 10 years after the death of Columbus.

On account of the anthropophagous habits of these Indians, their tribal name became with the Spaniards of the 16th century synonymous with man-eating, and with this meaning the word *Canibal* passed into Spanish and then into all other European languages. Their cannibal habits were, however, greatly exaggerated by the early authors, for these Indians did not undertake any expedition with the sole purpose of procuring human food, but they ate in retaliation the male Arawak captives, their traditional enemies.

The Spaniards during the early days of the conquest of America applied the name *Caribes* or *Canibales* to any tribe of *Indios bravos* who were supposed to indulge in the eating of human flesh, even if they were of entirely different stock from the true Carib. Still in our days, when cannibalism has been long extinct in Central America, the *Ladinos* (Spanish-speaking natives) loosely refer to different, only distantly related tribes of low primitive habits, as *Caribes*. This is, for instance, the case with the Lacandon of Guatemala, the Rama of Nicaragua, the Guatuso of Costa Rica, and the Miskito and Sumu of Nicaragua and Honduras. Several well known Central American travelers have through this confusion of names been led to believe that these Indian tribes were of the same stock as the Carib of the West Indies or of South America. As a matter of fact, the word Carib has in these cases no ethnic significance whatsoever, and it is applied in the sense of "wild," "uncultured"; it corresponds to the terms *Chontal* and *Popoluca* of the Mexicans, and to the South American words *Chuncho* or *Tapuya*, or to the *Barbarus* of the Romans.

These St. Vincent islanders, who are the descendants of the Island Carib, of whom they have preserved in modified form the

language, customs and habits, are, however, among the *Ladinos* of Central America, seldom referred to as Carib, but are known by the name *Morenos*, a term in Colonial times generally applied to men of color. In Nicaragua they are also called *Trujillanos* from the fact that they came to the latter country from the neighborhood of Trujillo.

The language of the Lesser Antilles, a mixture of Carib (*Galibi*) and Arawak, is still spoken by the Black Carib of Central America. It has, however, undergone some notable changes in the course of the last few centuries and has incorporated some Spanish, English, and particularly many French words, in order to express the names of articles the natives did not possess before the arrival of the Europeans. They count in French, except for the first three numerals, for which they have native names. There are also probably some African elements in their language, but this has not yet been ascertained. Most of the Spanish words found in "Garif" were taken into the vocabulary of the Carib after the deportation, but a number of these Spanish names are also found in the language as it is still spoken in St. Vincent, from which we may infer that the relations of the natives of the Lesser Antilles with the Spaniards were of much greater importance than has generally been believed by the historians of the West Indies.

All the male Carib of Central America speak Spanish and English besides their own language, and this may be said also of the women living on Ruatan island. On the mainland, however, the females speak only one language besides their own, that is Spanish in Guatemala, Honduras and Nicaragua, and English in the Colony of British Honduras.

For the pronunciation of the Garif words which are found in this article, the following explanation will be found necessary.

<i>a, e, í, o, u,</i>	correspond to the sound of these vowels in Spanish or German
<i>ö</i>	is the short German <i>ö</i> or short French <i>eu</i>
<i>ü</i>	is the short German <i>ü</i> or the short French <i>u</i>
<i>ch</i>	is pronounced as in English or Spanish

All the other letters represent the same sound as in English. The stress accent is indicated by the acute accent as in Spanish (').

THE CARIB IN THEIR FORMER HOME (ST. VINCENT)

At the time of the discovery of the New World the ancestors of these Carib occupied all the Lesser Antilles from Trinidad to Porto Rico. The remainder of the West Indies, that is, the Greater Antilles (Cuba, Hispaniola or Haiti, Porto Rico and Jamaica) and the Bahamas, were peopled by another race of Indians commonly referred to as the Tainan, belonging to the Arawak stock. Both of these races were of South American origin, and although their culture was similar in many points there was nevertheless a marked difference in their mode of living.

The Carib were very warlike, more or less nomadic, and had a little agriculture, but above all they were warriors, fishermen and hunters. They were distinguished among American Indians for their bravery, pride, and cruelty.

The Arawak were peaceable and depended chiefly upon the products of the soil for their subsistence. They were consequently a sedentary people, who resorted to hunting and fishing only as an accessory to agriculture.

The Lesser Antilles in former days were also peopled by Tainan or other tribes of Arawak stock. But these islands were invaded by the Carib from South America, who in the course of a long and primitive warfare conquered these peaceable original inhabitants, killed off the men and appropriated their women, the result being a people of mixed blood and culture. The Carib slowly extended their conquest, and at the time of the advent of the Europeans they were continually harassing their traditional enemies of the Greater Antilles and the Bahamas, and actually were in possession of the eastern section of the island of Porto Rico.

The new people, sprung from the mixture of Carib men with Arawak women, became known as "Island Carib," in order to distinguish them from their kindred still living in parts of South America. The Arawak women preserved their own language and taught it to their daughters, while the boys adopted that of their fathers. Attention to the difference between the language of the men and women was called by Columbus and other early travelers,

The following passage taken from Davies' *The History of the Caribby Islands* (London, 1666, 261) which in turn seems to be more or less a translation of César de Rochefort's *Histoire Naturelle des Isles Antilles de l'Amérique* (Rotterdam, 1658), explains how it came about that the men and women of the Lesser Antilles spoke different languages.

The Savages of Dominico affirm that it proceeds hence, that when the Caribbians came to inhabit these Islands they were possess'd by a Nation of the Arouagues, whom they absolutely destroy'd, save only the Women, whom they married for the re-peopling of the Country, so that those women having retain'd their own Language, taught it their Daughters, and brought them to speak as they did, which being practis'd to the present by the Mothers towards their Daughters, their Language came to be different from that of the Men in many things. . . . To confirm what we have said concerning the cause of this difference of Language, it is alleg'd, That there is some conformity between the Language of the Arouagues who live in the Continent and that of the Caribbian women: But it is to be observ'd, that the Caribbeans of the Continent, as well Men as Women, speak the same Language, as having not corrupted it by inter-marriages with strange Women.

On the Lesser islands no Europeans formed permanent settlements previous to 1624, so that the Carib were able to live in peace; but in that year began a rapid expulsion of the aborigines from most of the islands by Spaniards, English, French, Dutch, Danes, and filibusters. Only in St. Vincent, St. Lucia, and Dominica were they able to resist the encroachments of the Europeans, favored by the dense bush and the topography of the country, and, thanks to their own bravery and the rivalry between the French and English, in 1660 succeeded in having these three islands declared neutral and left to them. But soon afterward the land-hunger of the Europeans brought about the loss of their independence and on each one of these three islands they had to retire to small reservations while the remainder of the country was taken up by French and English colonists. The Carib did not give up their homes without resistance, and particularly on St. Vincent the French settlers met with much opposition until finally peace and friendship was restored.

In 1675 a ship with a load of Negro slaves destined for Barbados was wrecked in front of the small island of Bequia near St. Vincent. The Africans thus regained their liberty and made for St. Vincent,

where they formed a colony apart from the Indians with whom they intermarried and whose language and customs they adopted. Runaway slaves increased the number of this Negro-Carib colony, and when in the course of time disputes arose between these mixed people and their pure-blooded neighbors, the latter were compelled to retreat to another part of the island. But the encroachments of the Europeans on their land made them forget their differences and they made common cause against the intruders. The Negro-mixed Carib became known as "Black Carib" in order to distinguish them from the "Red or Yellow Carib." This latter designation comes from the fact that these Indians used on their bodies a copious application of a red-yellowish dye, the arnotto (*Bixa orellana*). This dye was called by the insular Carib "*roucou*," which name is still applied to it by the French and hence erroneously was believed to be a French name. The aborigines of Dominica also became mixed with runaway slaves from the English settlements, but those of St. Lucia remained of pure blood.

In 1763 St. Vincent became British and soon afterwards the newly arrived settlers began to encroach upon the land belonging to the Carib. This led to a war, which ended with the complete defeat of the natives, who had to recognize British rule.

In 1779, however, they assisted the French in the reconquest of the island, but at the conclusion of peace between France and England in 1783 St. Vincent was returned to the latter country.

But the Carib, who nearly invariably got on well with the French, did not like their new rulers, and they constantly harassed the English settlers. In March, 1794, at the instigation and with the assistance of French emissaries, they revolted and then began a warfare conducted on both sides with great cruelty. In July, 1795, the Carib were compelled to surrender in view of the great reinforcements which their foes had brought and they were rounded up in order to be deported.

But a number of them managed to escape while being taken to the vessel and hid in the bush. These latter later had the north-eastern extremity of the island assigned to them, where they formed the settlement of Morne Rond. Here they lived quietly

and in peace until May, 1902, when the volcanic activities of the neighboring Mont Soufrière caused them to flee to the southwest of the island. Here they founded the settlements of Campden park and Claire valley, near Kingston, where their descendants can still be found today. In 1881 the number of these Carib on St. Vincent was still estimated at 200, of whom nearly all seemed to have a large infusion of Negro blood, while only a few were pure Indians. Their language is now entirely extinct in St. Vincent, only a few of the older ones still remembering a few words, and their old customs and habits have also nearly entirely disappeared.

On the island of Dominica there still remain a few hundred Carib, of whom about a fourth are pure Indians, but these latter are also rapidly becoming absorbed by the Negroes. The language is entirely extinct, and only very little of their habits can still be observed in this island.

In St. Lucia the Carib kept aloof from intermarriage with Negroes, but here they have become extinct long ago.

Although the few Carib remaining in St. Vincent and Dominica are no longer of pure blood and their language has there become practically extinct, the Negroes of these islands and of the others of the Lesser Antilles preserve in modified form some traces of the material culture of the aborigines. Cassava is the chief food of the Negroes and of many white people and the manner of its preparation differs little from that of the Indians at the time of their discovery. In Dominica the different kinds of basketwork are made by the Africans in the same style and of the same material as in the early days.

HISTORICAL NOTICES ON THE CARIB IN CENTRAL AMERICA

After the Carib of St. Vincent had finally been subdued by the English in 1795, it was decided to deport them to Ruatan island in order to get rid of them. Over 5000 were caught and first taken to the small island of Balliceaux, a little south of St. Vincent. Later they were embarked on the ship "Experiment" under the orders of Captain Barrett, and on February 25, 1797, they were landed at the then deserted island of Ruatan, and provided with the means to begin life afresh. This deportation is said to have cost

the British government not less than five million dollars. A few months later they were invited by the Spanish authorities from Trujillo to come to the mainland. The larger part of their number followed this invitation and founded several settlements in the neighborhood of said port. Since that time they have multiplied considerably and gradually spread along the coast to the west and east of Trujillo.

In 1820, when the adventurer, General Aurey, made an attempt to capture Trujillo, a large force of Carib assisted the Spanish garrison in repulsing the enemy.

In 1832 many Carib were persuaded to join the Royalists who aimed at overthrowing the republican government of Central America and reestablishing Spanish rule, but at the different engagements which took place at Omoa and other parts of the north coast of Honduras they were defeated.

In order to escape punishment, those Carib who had been engaged in this uprising, fled to British Honduras and founded Stann creek, which town soon rose into importance. Others moved eastward to the domain of the Mosquito or Miskito Indians. Already during the beginning of the 19th century many Carib had followed an invitation of the Mosquito "King" George, who had allowed them to extend their settlements eastward as far as Patuca river, but later, on account of the oppressive conduct of the Indian chief, General Robinson, they retreated westward of Black river, which place today still forms the boundary between their settlements and those of the Mosquito Indians.

When later the government of Central America granted amnesty to all fugitives who had taken part in the Royalist movement of 1832, many Carib left Stann creek in order to return to their homes, but the larger part preferred to remain in the British colony, where they were not interfered with as much as in the turbulent Central American states.

HABITATIONS

The *Caribales*, or Carib villages, are always found in the immediate neighborhood of the sea, either at the mouth of the rivers, or on the edge of the lagoons, which in many parts of

eastern Central America extend parallel with the sea, being separated from it by a narrow strip of land.

The houses are kept neat and clean. They are all built on the same style, oblong in shape, measuring about 10 m. by $6\frac{1}{2}$ –7 m. with mud or palmwood walls and a leveled mud floor. From the center of the front and back sides a door leads into the larger one of the two apartments into which the Carib houses are divided. This is the kitchen, which also serves as dining and living-room; it connects by a door with the bedroom. The beds are generally reserved for the married people while the other inmates use hammocks.

GENERAL APPEARANCE

The Carib are well developed, muscular and powerful, and in stature are somewhat stouter and shorter than the average Negro. During Young's time (1839–1841) many "Red Carib" could still be found among them, but these have in the course of time been absorbed by the "Black Carib." It is difficult to distinguish the average Carib of Central America at first sight from the Negroes, but careful observation will disclose thinner lips, often a slightly aquiline nose, and among the females a much greater abundance of hair. Head deformation, which in St. Vincent was practised not only by the pure Indians but by the Black Carib as well in order to distinguish themselves from the Negro slaves, has not been continued after the deportation to Honduras.

Both sexes generally walk barefoot. The characteristic head-wear of the men is a cheap palm hat with a broad rim, which is made in the interior of Honduras by the *Ladinos* (Central Americans of Spanish speech). The women tie around the neck a large handkerchief (*músuc*); when making a visit to a neighboring village or going to church they wear in addition a sort of *mantilla* (*mánda*), which takes the place of the hat. The women and children are fond of necklets of coral and shell beads, stones and animal teeth. In fact by the dress the men can generally, and the women always, be distinguished from the Negroes. The Carib women have longer and prettier hair than the African females; they devote much time to it, daily anointing it with

cocoanut oil, to which they add imported hair tonics and perfumes. Instead of cocoanut oil they also use the so-called "*batana*" (a Miskito word), another hair oil, which is prepared by the Miskito Indians from the seeds of the oil palm (*Elaeis melanococca*).

AMUSEMENTS

The musical instruments consist of drums, conchs, gourd rattles, reed flutes, bone whistles and guitars. Their native drum or "*garáwung*" as they call it (locally called "tomtom" in English and "tango" in Spanish), is made out of a single piece of a mahogany or cedar trunk. It is of cylindrical shape, having a diameter of 12 to 20 inches, and a height of 20 to 30 inches. Over one extremity is stretched a deer skin; it is beaten with the hand. This is their principal musical instrument. De Poincy mentions among the Island Carib an instrument with a single string and a calabash resonator, which is, however, entirely unknown among the Carib of Honduras. Music is nearly always accompanied by song, whereas the Central American aborigines rarely or never sing.

The Carib are very fond of dancing and the modern dances have also been introduced in some of their more up-to-date settlements. One of their favorite dances is the *gújai*, in which both sexes take part. It resembles somewhat a contre-dance, and is known in local English by the name "John Canoe dance." It is said to have been introduced by Haitian Negroes of whom in former days a small colony existed at Trujillo. It is said that in Haiti a similar dance is still known by the name "kujai."

On Christmas and New Year's day the Carib celebrate their Carnival, the *wanáragawa*, when masked dancers parade the streets of their villages, singing and dancing at the sound of their primitive drum. Attired in gaudy robes with a headdress of pasteboard on which multicolored tissue-paper has been pasted and surmounted by a few macaw feathers, they present a very interesting spectacle and all the children follow them. All the masqueraders are men; they dance singly, performing all kinds of strange and grotesque movements and twists of the body, sometimes imitating the gait of some wild animals. Below the knee they tie clusters of oyster and other seashells, which rattle at

every movement they make. During this parade they collect a little money, which is invariably spent on rum and other alcoholic drinks, and by nightfall all the dancers are drunk, hoarse of voice, and physically exhausted. This celebration has apparently been taken from the carnival of the French settlers of the West Indies, for the Carib consider it an act of rejoicing and in their own mythology there is no reference whatsoever to the *wanáragawa*.

CUSTOMS AND HABITS

At the death of a relation the women cut their hair, and there are wakes, both sexes indulging in singing, dancing, eating and drinking.

Polygamy is in existence, but only very seldom does a man keep more than one woman in the same village. He goes to live alternately with every one of them for a short period and generally they are all treated alike. A man generally marries his female cousin, that is, the daughter of his father's sister or of his mother's brother, but the children of two brothers or of two sisters are considered related to each other as brother and sister. A man will desert a woman if she is unable to bear children, but he will never abandon the mother of one of his progeny.

A modification of the *couvade* found in the Lesser Antilles still exists among the Carib of Central America. After the birth of a child the father will refrain from performing any hard work for the period of two weeks; he will also keep a diet during this time, and not go to sea or into the bush lest the child become sick and die.

Hunting and fishing are masculine occupations, but in the latter work the women greatly assist. The men cut down the bush for the plantation, but the burning, planting, weeding and harvesting is done exclusively by the women. When planting and weeding they make use of a sort of *macana*, of English manufacture, and called cane-bill in British Honduras, where it is employed in sugar plantations. In the Central American republics the use of this tool seems to be restricted to the Carib, who buy it in Belize. They call it *gaburána* in their own language.

Among the Indians of Central America the men do all the planting and in some regions there exists the belief that otherwise the plantations would not yield as good a crop. It may be said that the distribution of work is unfair to the Carib woman, who seems to occupy a lower social position than does the woman among the different Indian tribes. One may at first attribute this to the fact that among their ancestors, the Island Carib, the women were captured from Arawak enemies and were considered slaves. But the same conditions seem to have prevailed among their kindred on the Orinoco, for when the kind-hearted Jesuit missionary José Gumilla inquired from the men why they did not assist their poor women on the fields, he received the following reply: "Father, you don't understand these things which accordingly worry you. You have yet to learn that women know how to bring forth and we don't; if they plant, the maize stalk gives two or three ears of corn, the cassava plant yields two or three baskets of tubers, and similarly everything is multiplied. Because the women know how to bring forth and they know how to make the grain bring forth; therefore they do the planting as we don't know as well as they."²

FOODSTUFFS—PREPARATION OF CASSAVA BREAD

Fish, cassava, and cocoanuts are the staple food of the Carib. Mollusks, crabs, turtles, manatee, deer, peccary, iguanas, birds, and other small game help to vary their table. Corn (maize) and other cereals are, as was the case among the Island Carib, only sparsely cultivated. As a matter of fact, corn had been introduced into the West Indies as a food plant only shortly before the discovery. Bananas and plantains do not form such an important article of food as among the neighboring Indian tribes of the Mosquito coast. The ripe fruit is generally made into *guréntu* (*mochilá* or *muchilá* in local Spanish), a thick liquid similar to the *wabul* of the Miskito Indians. This food, when well prepared, is much appreciated by the average foreigner. The ripe fruits are boiled and then put into a wooden mortar (*hána*) of hollowed tree

² J. Gumilla, *Historia natural, civil y geográfica de las Naciones situadas en las riberas del Río Orinoco* (Barcelona, 1791), 2 237.

trunk; with the aid of the wooden pestle (*auruwa*), 10 feet in length and as thick as an arm, they are thoroughly mashed, cocoanut milk is added little by little, and the whole is well mixed.

But the main food of the Carib is the cassava bread which is prepared by a laborious method from the poisonous root of the cassava (*Manihot manihot*). Davies in his *History of the Caribby Islands*, 287, relates the legend of the introduction of this national food plant, by a man in white descending from heaven, which recalls the *Quetzalcoatl* myths of Mexico.

First the root of the manihot is peeled and washed, then grated by means of a curious implement (*égi*), which consists of a wooden board one inch thick and about 40" by 20", on the slightly concave surface of which small particles of hard rock (granite) have been driven in. The making of such a grating board requires considerable patience and is the work of the old women. At first many holes are made on the concave side of the board by driving a short nail into it with a hammer. Then small, sharp splinters of rock are driven half way into these holes, thus producing a sharp uneven surface. This utensil has now entirely disappeared from St. Vincent, where it has been replaced by the grater of foreign manufacture, but it is still in use in large areas of South America. A grating board of similar shape and construction but considerably smaller is used by the Carib women to grate cocoanuts.

In grating the cassava the neighbors generally assist and one may frequently see in their houses four to six women stooping each over her native grater, which all rest in one large oblong trough, 5 feet long, 2 feet broad, and about 6 inches high. This work is almost invariably accompanied by song, and one of the women, from time to time, with a tubercle in each hand, beats the rhythm on the board.

The grated cassava contains much juice, which is squeezed out in a curious "wicker woven" cylinder-shaped press (*rúgum*, *rúguma*). This is a very elastic basketry tube, of about 10 feet in length and 4 inches in diameter, known among the Ladinos by the name *culebra* (snake), and among the English by the Mískito name *waula* (boa).

After being filled with the grated root this press becomes considerably shorter and thicker. It is then hung with one extremity to the roof, and to the lower end heavy weights are attached. Frequently a strong pole is put through the loop at the lower extremity and one or two of the women sit on it in order to increase the pressure. The press then increases in length and becomes thinner, and by the contracting pressure the juice is forced out and collected in a trough placed under it. This style of cassava press is also found among the Carib of Dominica and in large areas of South America. It is also made use of by the Negroes of Surinam (Dutch Guiana) and occasionally by those of Trinidad. In some parts of the West Indies and South America it is known by the name "matapie."

The juice is the poisonous part of the cassava root and it is used by the Carib in cooking as a sauce. Its poisonous qualities are expelled by heat; it has to be heated twice a day, and in this manner will keep for over a week. The fish are generally cooked in this cassava juice, but occasionally they fry them in cocoanut oil. Among the English-speaking population of some of the Lesser Antilles this sauce is called "cassareep" and it is the basis of the famous dish known as pepperpot. The Central American Carib call it "*dumári*," which name the Ladinos of Trujillo have corrupted into *tumalé*.

After the grated root is freed from all the juice, it is passed through a circular sieve, about 3 feet in diameter, in order to separate the fibres and particles of the root. The sieve is made of the same material as the cassava press, pack-baskets, traveling-baskets, etc., and is known among the Carib of Central America by the name "*hibisi*" and in St. Vincent *ásibidi* (from English sieve). A similar sieve, only much smaller, is used for separating the cocoanut milk from the fleshy particles.

The part passing through the sieve is used in the making of the famous cassava bread, which is baked on flat, round iron griddles (*budári* in Carib, "*comal*" in Spanish), 2 to 4 feet in diameter and 1/2 inch in thickness, of English manufacture. The bread is made nearly the same size as the griddle; after taking it off the fire it is generally exposed to the rays of the sun for a short time.

Two kinds of bread are made. The thinner one is called locally "cassava wafer" or "bammy" (*cazabe* in Spanish, *aréba* in Carib), and sells for two reales (about 12½ cents U. S.). It is stored in flour barrels and, if kept in a dry place, this bread will not spoil for several months, but to the European it tastes best while still fresh. It is very white, has very little taste, is extremely hard, and is therefore dipped in hot liquid food when eaten.

The other kind of bread is about twice as thick and somewhat acid in taste. It is the better of the two, and can be bought for four reales (about 25 cents U. S.), but the Carib do not like to sell it and prefer to keep it for themselves. It is called "*marímarúti*" in their language, "king cassava" in English and *marote* in Spanish. It will keep only a few days, and is generally eaten in soup. As soon as taken off the griddle it is generally placed between the large *bijagua* leaves (*Calathea insignis*) in order to improve the taste and render it hard.

The coarser part of the pressed cassava, which fails to pass the sieve, is also baked on the griddle, but it is not eaten and serves for the preparation of an intoxicating drink, the cassava beer. For this purpose it is broken in small pieces and put into a mortar or a large gourd, warm water is added, also a small quantity of grated sweet-potato in order to assist fermentation. It can be made very strong and intoxicating, but it is generally taken in a harmless state as a *fresco*. It is called "*hiyú*" in Central America; to the Carib of the Lesser Antilles and parts of South America it was known as "*piwarri*."

OTHER OCCUPATIONS; INDUSTRY

The Carib are very industrious and sell fowls, eggs, ground provisions, fruits, cassava starch, cassava bread, arrowroot starch, cocoanut oil, firewood, etc., to the *Ladinos* and foreigners of eastern Central America. They are expert boat-makers and carpenters. In former days mahogany-cutting in Honduras was done almost exclusively by Carib labor. They also used to travel to the log-wood and mahogany camps of British Honduras, where they worked about three to six months every year. Since the establishing of the banana companies on the north coast of Honduras they

do not need to leave their country any longer, but find plenty of work at home; the loading and unloading of the banana steamers is generally done by Carib labor.

Much of their work is still done on a communal basis, as, for instance, the building of a house, when the inhabitants of a whole village will join hands. The women bring the mud and make the floor; they also construct the roof, for which *manaca*, the leaves of the cohune palm (*Attalea cohune*), are universally used. The remainder of the work is done by the men. The owner of the house has to furnish plenty of food and drink, and the work is accompanied by song and merrymaking.

The Island Carib used to make good and highly ornamented pottery, also to spin and weave cotton, but these arts have been entirely lost among their descendants in Central America. Formerly they made strong hammocks from the fibre of the *pita* (silkgrass) but now they buy cloth hammocks, and the fine thread of that plant is nowadays only used to make fish-lines and to repair shoes. From different kinds of swamp-grass they make mats of poor quality (*nad*, *nádo*).

From the split stem of a climbing palm which they call *gaunwere* (Spanish "balaigre," English "basketweed") they make several articles of very good quality, as for instance traveling-baskets, pack-baskets, cassava sieves, cocoanut sieves and cassava presses. Only the elder men are able to make these.

The traveling-baskets, commonly called "Carib baskets" or "pattaquis" locally (*yamádi* in Carib, *petaca* in Spanish), are waterproof and are in fact double baskets, one within another, being separated by a lining of *bijagua* leaves (*Calathea insignis*). They take the place of trunks, suitcases, and wardrobes; they are oblong in shape, provided with a cover, and are made in different sizes. This same style is also found in St. Vincent.

When carrying a heavy load the women make use of the pack-basket (*gádaure* or *gadaure*, corrupted by the Ladinos into *cataure*), an implement still found in the island of Dominica also. The men never make use of it; as a matter of fact, they seldom carry heavy loads on their backs, and frequently have I seen a poor woman returning from the plantation staggering under a heavy

load, while her husband was following with his shotgun and *salveca*. The latter is a sort of hunting-bag made of canvas, and painted to render it waterproof, wherein the men put their lunch, pipe, tobacco, powder, caps, matches, etc., when traveling or going to work.

The Carib are very expert in the handling of canoes and small sailing vessels. They do not steer by the compass and do not venture on the high sea, but confine themselves to coastal travel, whereby the stars and the mountain peaks situated inland serve as guides. The women do not go to sea alone, but they assist their husbands in the propelling of their craft. They were, as seamen, even excelled by their ancestors from the Lesser Antilles, for the latter covered much greater distances and ventured out on the high seas. A significant passage in the Maya chronicles states that long before the coming of the Spaniards naked man-eating savages visited Yucatan in sailing-boats. It is very probable that the people in question were the Island Carib, for in the whole of America the use of the sail was known only to them and the Maya. According to Oviedo these sails were made of cotton, which they knew how to spin and weave, but with their descendants in Central America this has become a lost art.

The Carib are rather inoffensive people and very law-abiding except for smuggling, for this is one of their favorite occupations. On account of the sparse population of the long coast line of Honduras and the physical topography of the country, they are very rarely caught. When having contraband goods on board their canoe, they travel by night, as they know the coast well. Upon sight of a revenue cutter they enter the mouth of a river or a lagoon, where they hide until the danger is past. When pursued, they will hide the merchandise among the dense vegetation and carry the canoe for some distance through the bush without leaving a conspicuous trail behind. Should they be very hard pressed, they will abandon the boat with everything in it and make their escape, while the authorities will have to be satisfied with the spoils, for no Carib will betray another.

In Honduras the Carib are subject to military service and form a large percentage of the soldiers stationed in the coastal towns

of the Atlantic side. They are not compelled to serve in the interior of the republic, where, needless to say, they would not feel at home among a different population. They make very gay soldiers, but are considered unreliable, will not submit to rigid discipline, and their fighting qualities compare very unfavorably with those of the *Ladinos*.

Their first engagement on Central American soil took place in 1812 in Nicaragua, to which country a number of them were despatched from Honduras as part of the Olancho battalion, in order to suppress the revolutionary outbreak in León, which was the first serious movement in Central America against the mother country.

The Carib do not engage much in hunting, and compared with the *Ladinos* they act rather awkwardly in the bush. Their principal game is deer, which are found often within close distance from the seashore. The bow is entirely unknown today, but with their forefathers it was the chief weapon in hunting, fishing, and warfare. For this latter purpose the Island Carib used a vegetable poison in connection with the arrow.

For their non-vegetarian food the Carib are dependent almost entirely upon the sea and the adjacent lagoons. Most of the fish are caught by means of the net, of which they use different kinds made of imported twines. Long-handled harpoons are also used in fishing, as well as hook and fishpot. The latter occurs in two different shapes, one for the sea and the other one for the rivers and lagoons. The former kind is made of split wild cane, the latter of *guiscayol*, a spiny palm (*Bactris horrida*). Manatees are caught with the harpoon and are considered very good eating. To the Island Carib, however, this mammal was taboo, and an amusing incident is related by de Poincy of a Frenchman who had served manatee to his Carib guest.

RELIGION, SUPERSTITION, SORCERERS

The Carib adhere to the Catholic faith, of which they have accepted only the outward forms; in reality they still practice many superstitious rites of their forefathers. In British Honduras many of them have been converted to Protestantism.

The belief in "Obeah" has been introduced by the Negroes from British Honduras, where several celebrated "obeah men" are living.

The Carib are feared as sorcerers and poison doctors by the ignorant *Ladinos*, who believe that they are able to kill their enemies with the aid of the *sontín* (said to be a corruption of the English word "something"). This *sontín* consists of a piece of vine which the Carib lay upon the road over which their enemy has to travel; it develops into a poisonous snake and attacks the latter upon his approach.

They are also supposed to be acquainted with the use of *camotillo*, a vegetable poison, which will cause a lingering illness and finally the death of the intended victim.

A kind of "love medicine" in the shape of a white powder, known as "tempting powder" is obtained by the Carib in Belize, where it is sold by an old African. The young men believe that with its aid they can conquer the heart of any woman. They generally put a little of it on their handkerchief and let the person they love smell it, after which they claim that the latter will be unable to resist them. The Carib claim that this same powder is also used in taming wild animals and that it can be bought only under that pretext.

For the curing of certain lingering diseases the following method is employed by their doctor. The sick person is taken to a gumbolimbo tree (*Bursera gummifera* L.), his foot placed against the stem and then an incision made into the bark around the foot. The bark is then taken off so that the impression of the foot remains upon the stem. If the sick person carries out the doctor's instructions, his recovery will keep pace with the growth of the bark of the tree: when the space is entirely recovered with bark, he will also be completely cured.

The *búye*, or dugumaster as the English-speaking Negroes call him, is held in great esteem by the Carib. He cures the sick who suffer from some mysterious illness and are unable to obtain relief from the use of the medicines administered by their native doctor. He is also the medium through which communications with the spirits of the dead (*gúbida*) may take place. When a *búye* dies his

spirit will enter the body of the one destined to be his successor. This latter will at such time meet with an accident or fall sick or act like a madman and have visions; the *gúbida* will then inform him that he has been chosen by them as a *búye*. He must not refuse lest they kill him. He prepares himself for his new ordeal by keeping wakes, by abstinence from sexual intercourse and certain foodstuffs, etc.

Disease, according to the Carib, is caused by the *máfya* (demon, devil, evil spirit); in fact any undesirable happening may be attributed to him. Only the *gúbida* are able to counteract his evil influence and they can be approached only with the aid of the *búyc*. If a Carib is ill, for instance, the *búye* will find out from the spirits of the departed relations of the sick person what has to be done in order to drive the *máfya* away. Sometimes they will say that a mass read for the reposal of their souls will do. Frequently they demand that their relations make them a *chugú*, which consists of an offering of their favorite food and drink. This is then placed upon a low four-legged table, made from plaited palm leaves or the midrib of *bijagua* leaves, which is used only for this purpose. This food and drink are kept one day in the room adjoining the one of the sick person and then thrown into the sea, as the *gúbida* are supposed to have by that time consumed all the nourishment contained therein.

DUGU FESTIVAL

Should, however, the condition of the sick man not improve, the wrath of the *gúbida* can only be overcome by the celebration of a *dógò* or *dugú*, a festival lasting three days and three nights without interruption. It is known among the Ladinos by the name *Baile Mafya* (dance of the mafya) and it is celebrated in a house specially erected for this purpose, and called by the Carib *lúban dógú* (dugu house) or *gayúnari*. Formerly the Honduran authorities had forbidden this festival, but the Carib celebrated it just the same in all secrecy in villages where no *Ladinos* were living or even disguised them so that the casual onlooker could not distinguish it from an ordinary dance. Later permission was granted by obtaining a license against the payment of a sum of

money varying in the different municipalities from 50.00 to 200.00 pesos silver (the silver peso is worth about 50 cents U. S.). Great preparations are made for this festival and hogs, cattle, chickens, etc., are killed in order to supply the guests with food.

The following description applies to a *dogú*, which was held in December, 1920, at Limón, a large Carib settlement on the north coast of Honduras, about 15 miles east of the mouth of the Aguán river. A young Carib who had been working for the Tela railroad company had become entirely paralyzed and after having remained several weeks in the hospital of the company at Tela, his relations decided to bring him home and consult the *búye*. The latter, after having conferred with the *gúbida*, stated that only a *dogú* could save him from death. Three weeks after the celebration of the festival I saw him again at Limón; he was then able to move around with the aid of crutches and everybody in the village ascribed this cure to the effects of the *dögú*, by which the *máfya* had been expelled from him. Many of the more intelligent Carib call this festival a lot of nonsense, but with the exception of one single family all the inhabitants of Limón took part in it. Some of the latter told me that they had done so only in order to please their relations or to rejoice and have a good time.

The house, in which the festival took place, consisted of one single apartment, at one corner of which lay the sick man. At the center was placed what appeared to be a small pile of earth, the *lanígi dögú* (heart of the *dugu*), over which was spread a small mat (*lidau*). The latter was made of the plaited strips of the balaigre (*gaunwere*) plant, from which they also make their pack-baskets, traveling-baskets, cassava presses and sieves. Around these were placed several large vessels containing *hiyú* (an intoxicating drink prepared from the coarse cassava bread), and every male guest deposited a bottle of rum or whisky there also. Every one, male as well as female, had the face smeared with arnotto, the red dye of the *Bixa orellana*, or with lampblack, and brought along from home a rooster which was carried in one hand during the dances. The dancers formed several circles, which revolved in different directions around the *lanígi dögú*. In each

circle men and women alternated with each other. They did not join hands, but imitated the gait of wild animals, and performed all kinds of grotesque movements, which, as the influence of the intoxicating beverages was felt, became rather immoral and very shocking to a stranger.

At daybreak of the second day the roosters, which the dancers carried in their hands, were killed. Together with a large assortment of other articles of food, they were then cooked and afterward placed in dishes on a long table. This is for the *gúbida* and every family prepares the favorite dishes of their departed ones. None of the people partake of this spirit food, and on the evening of the third day, when the *gúbida* are supposed to have consumed all the nourishing matter in it, it is thrown into the sea. The *búye*, to the sound of gourd rattles he carries in his hands, leads this procession to the seashore, and in the presence of all the guests throws the food into the water.

Every evening there is an intermission of about half an hour, when everybody, except the *búye*, leaves the house. The lights are extinguished and he will then communicate with the spirits, whom he asks if they are pleased with the offerings presented to them, but the *gúbida* are never satisfied until the third evening, when they promise to expel the *múfya*. After the intermission of the last evening during the festival at Limón, one of the female relatives of the sick person took a large red cloth, which she wrapped around herself and went through a series of grotesque movements and convulsions of the body. I was told that this was the expression of thanks to the spirits for having promised to expel the evil from her sick relative.

I asked several elderly Carib, including the *búye*, to explain to me the meaning of the pile of earth in the center of the building, but they did not know or were unwilling to tell me. They merely stated that their ancestors celebrated their festival of the dead in this manner. One of the old men told me that the voice of the *gúbida*, which is intelligible only to the *búye*, emanates from this spot. I have been told that in olden times the Carib used to sacrifice a child at the *dōgú*, the heart of which was buried in the house of the festival. Perhaps this pile of ground, which

they called *lanígi dögú* (heart of the dugu), contained in former times the heart of the sacrificed child.

In an adjoining house a number of hammocks had been fastened where the men sat part of the time, but they did not use them to sleep in. As a matter of fact, none of the guests seemed to have had any sleep at all during the three days and nights the festival lasted. In this same house was kept a boy of about four years, entirely naked, who had the whole body smeared with the red arnotto dye. He was treated somewhat like an idol, *hiyú* was offered continually to him, and he remained totally drunk during the whole festival. I was unable to ascertain what this boy represented in the *dögú*, for the Carib only very reluctantly answered my questions regarding him, and stated that they were only following the customs of their forefathers. It may be this is the child whose heart was supposed to be buried in the center of the house, and that, human sacrifice not being permitted any longer, they placed a mat above this burial place, so that the *máfya* or the *gúbida* should not be able to find out that there was nothing contained therein. It is, however, rather significant that the little boy in question died a few days after the *dögú*, but his death may have been caused by the excessive consumption of *hiyú*.

MERTZIG,

LUXEMBURG

SUN WORSHIP IN THE SOUTHEAST

By JOHN R. SWANTON

EXPLORERS of our Mississippi valley mounds who may chance upon what seem to be altars and traces of sacrifices in connection with them, or in fact any suggestions of ceremonies in which fire has played a part, or those who find problematical wheel- or star-shaped designs, are wont to explain them as indications of "sun worship," but, except for citations of the Natchez, scant effort has been expended in the attempt to prove the existence of solar worship in the region concerned. As some of the mounds of this area were undoubtedly the work of tribes still living in the Gulf region when Europeans began their settlements, testimony regarding solar worship among them should be of considerable value to archaeologists. To such students, no less than to ethnologists, it is hoped that the subjoined notes regarding various Southeastern tribes will be of interest.

Natchez.—The sun worship of the Natchez is fairly well known. The culture hero of this tribe was supposed to have come from the sun and, after organizing the Natchez state, to have entered, or turned into, a stone which was carefully preserved in the temple where also a fire was kept burning perpetually. The rulers of the Natchez and of each of its towns were drawn from a caste called Suns descended from the culture hero in the female line, and when they died the bones of at least the principal among them were laid away in the national temple. The Natchez state was thus to all intents and purposes a solar theocracy. The beliefs and religious institutions of the Taensa, a tribe living some miles north of the Natchez, were practically identical. The same was probably true of the Avoyel living a short distance west. It should be added that the Natchez claimed they formerly extended much farther up the Mississippi river, and indeed the De Soto narratives make it evident that tribes of the same connection

occupied a wider area than when discovered by the French a hundred and fifty years later.¹

Yuchi.—The people of this tribe called themselves *Tsoyahá*, "Offspring of the Sun," and the sun was undoubtedly their chief deity. Their origin is traced by themselves to a man called *Tsō* ("Sun") who came from the sky and instructed them in their characteristic ceremonies, the square ground which he designed for them deriving its pattern from that in the world above. According to one of the myths recorded by Speck, the culture hero arose from a drop of menstrual blood of the female solar deity. According to another, his mother was the moon and the sun was considered his father.² The dominance of the solar element in Yuchi belief is sufficiently evident, and it becomes of particular importance to the archaeologist when we remember that Yuchi origins may be traced historically as far north as Cumberland river.³ It is probable that the tribe lived at one time on the Ohio or beyond.

Creek.—The Creek entertained the belief in a supreme being called Ibofānga, "The One-above," or Hisagita-immisi, "The Breath-master." The word for breath is also used for "life." This conception was so easily affected by teachings of the white missionaries that the true native attitude in regard to it is difficult to determine. However, the following incident recorded by Adair is relatively free from his own rationalizings and seems to let us into the native conception. A Creek, having become intoxicated, reeled into the fire and burned himself severely, upon which

he roared, foamed, and spoke the worst things against God, that their language could express. He upbraided him with ingratitude for having treated him so barbarously in return for his religious offerings, affirming he had always sacrificed to him the first young buck he killed in the new year; as in a constant manner he offered him when at home, some of the fattest of the meat, even when he was at short allowance, on purpose that he might shine upon him as a kind God. And he added, "now you have proved as an

¹ See B. A. E. Bull. 43: 45-273.

² Frank G. Speck, *Ethnology of the Yuchi Indians*. Anthr. Publ. Univ. Mus., Univ. Pa., 1: 102-112, 1909.

³ B. A. E. Bull. 73: 184-190. 286-311.

evil spirit, by biting me so severely who was your constant devotee, and are a kind God to those accursed nothings (i.e., the white people), who are laughing at you as a rogue, and at me as a fool, I assure you, I shall renounce you from this time forward, and instead of making you look merry with fat meat, you shall appear sad with water, for spoiling the old beloved speech. I am a beloved warrior, and consequently I scorn to lie; you shall therefore immediately fly up above the clouds."⁴

The psychology here is all aboriginal and fits in with the Natchez belief as described above and with the reverence paid to the annual busk fire by the Creek themselves. The connection between the ceremonial fire and the solar fire is apparent.

Chickasaw.—In giving the anecdote just recorded, Adair had in mind the beliefs of the Chickasaw as well as those of the Creek, and he evidently observed no discrepancy between them. In several places he mentions Chickasaw beliefs specifically and in similar terms. Thus he says that they called the supreme being "Loak-Ishto-hoollo-Aba [Luak Ishto Holo Aba], which appears to signify "the great holy fire above," and adds that

he is with them the sole author of warmth, light, and of all animal and vegetable life.⁵

Choctaw.—The aboriginal beliefs of this tribe are difficult to isolate, but the following from Allen Wright is quite conclusive, partly from its non-Christian character, and partly from its agreement with the ideas of the neighboring tribes already described.

That the Choctaws anciently regarded the sun as a deity, is probable for several reasons. 1. To the sun was ascribed the power of life and death. He was represented as looking down upon the earth, and as long as he kept his flaming eye fixed on any one, that person was safe, but as soon as he turned away his eye, the individual died. To the sun, also, they attributed their success in war. An aged native has given me the form of a speech used by the war-leaders after returning from a successful expedition. In this they acknowledged that it was through the influence of *Hushtahli*, or the sun, that they were enabled to find the bright path, which led them to victory, and returned them in safety to their homes. 2. In ancient times, *fire*, as the most striking representation of the sun, was considered as possessing intelligence, and as acting in concert with the sun. The fire and sun were

⁴ James Adair, *History of the American Indians*, 116.

⁵ *Ibid.*, 19.

supposed to have constant intercourse with each other, and the fire acted the part of an informant to the sun. And it was an ancient saying of theirs, that if one did anything wrong in the presence of the fire, the fire would tell the sun of it before the offender could go *ashlapa*, the length of his extended arms. This intercourse between the fire and sun is also recognized in one of their war songs, which an aged man has repeated to me from memory. This man stated that anciently, when about to set out on a warlike expedition, after having performed the prescribed ceremonies, the king being seated on the ground and the warriors about him, the principal waiter on the king arose and sang the war song. In this song there is nothing of a religious nature, except in one stanza, in which the warriors are exhorted to rely for success on *the Sun, and the Fire his mate*. . . . In speaking of [the supreme being they] often call him the *man above*. His dwelling place is regarded as being somewhere on high. The representation of the Choctaw is, that when the Creator had made the earth, and its inhabitants (the red people), and had given them their civil regulations, he returned to his place above, and they saw and heard nothing more of him.⁶

Here, as well as in Adair's reference to the Chickasaw, the native idea of the creative function of the principal deity may have been somewhat stretched, but the greater part of the concept is plainly aboriginal; it agrees closely with the concepts of the tribes already considered.

Chitimacha.—The oldest material preserved from this tribe pictures a creator independent of the sun, the latter being represented as a powerful female deity. In later times, at least, the sun was placed in the supreme position and is spoken of as a male being called Kutnahīn "directly overhead." To him some of the mythic heroes paid visits and it was he who gave mankind corn and taught the art of fishing and the practices of the doctor. But he also figures as "trickster."⁷ The Atakapa called their best remembered deity "the one above" (Otsotat), but practically nothing has survived regarding the belief entertained concerning him.⁸

Caddo.—In referring to the chenesi or xenesi, the head spiritual functionary of the Caddo tribes, Prof. H. E. Bolton, who derives his information from early Spanish documents, says:

⁶ Allen Wright, *The Missionary Herald*, 24: 179-180, 1828.

⁷ B. A. E. Bull. 43: 356-358.

⁸ Gatschet's Ms. Atakapa vocabulary.

the most important duty of the xinesi was to care for the fire temple near his house, and to consult the Coninisi, or fictitious twin boys, by means of which he talked with the Great Chief Above.⁹

The information is meager enough but it is in striking agreement with most of our other data from the Southeast.

Cusabo.—This name is given to a group of small tribes between Savannah river and the Atlantic ocean. There is every reason to believe that they belonged to the Muskogean linguistic family, the same which includes the Creek, Chickasaw, and Choctaw. All of the ethnological information regarding these people is scanty, but what there is tends to align them with their relations farther west. A Carolina narrative published in 1682 says of the tribes of this section:

Their religion chiefly consists in the adoration of the sun and moon.¹⁰

By itself this means little, but it should be connected with the following from Alexander Howat:

They look upon fire as sacred, and pay the author of it a kind of worship.¹¹

Timucua.—It is not as yet established what relationship existed between this people and the other tribes of the Gulf, but the Muskogean element in their language is so pronounced as to make it probable that they were connected in a manner similar to the Natchez, representing a dialect which went back to an early period of Muskogean development. They are also said in a general way to have been sun worshippers, but what LeMoyne tells us of one ceremony among them is of more value than this bare assertion.

The subjects of the Chief Outina were accustomed every year, a little before their spring—that is, in the end of February—to take the skin of the largest stag they could get, keeping the horns on it; to stuff it full of all the choicest sorts of roots that grow among them, and to hang long wreaths or garlands of the best fruits on the horns, neck, and other parts of the body. Thus decorated, they carried it, with music and songs, to a very large and splendid level space, where they set it up on a very high tree, with the head

⁹ Bull. 30, pt. 2, art. Xinesi.

¹⁰ Carroll, Historical Collections in South Carolina, 2: 80.

¹¹ Ibid., 1: 69–70.

and breast toward the sunrise. They then offered prayers to the sun, that he would cause to grow on their lands good things such as those offered him. The chief, with his sorcerer, stands nearest the tree and offers the prayer; the common people, placed at a distance, make responses. Then the chief and all the rest, saluting the sun, depart, leaving the deer's hide there until the next year. This ceremony they repeat annually.¹²

In this everything depends on the interpretation, but it deserves considerable confidence, I think, because of its agreement with what we have found elsewhere, and because of the similarity in several particulars between the Timucua and the Natchez.

On the authority of an Indian carried off from the present South Carolina coast and probably from the eastern Siouan territories, Peter Martyr tells us that the Indians of that section held a belief in two deities, one ruling in the icy regions of the north and the other, "of a sweet and generous disposition," in the south, though there is nothing to connect either definitely with the sun.¹³ George Percy reported in 1607 that the Powhatan Indians were sun worshippers, but Smith does not substantiate him, though the being called by Strachey Ahone may have been of solar character.¹⁴

As we go north we still find evidences of belief in a celestial deity superior in some measure to other spirits, but the conception is not so clearly linked with the sun, except in certain parts of the Plains.

A female solar deity has been mentioned in connection with the Yuchi and Chitimacha, and the solar deity of the Cherokee was also feminine, though there is no evidence that she occupied a dominant position. On the other hand, Mr. M. R. Harrington tells us that the head of the Shawnee pantheon was a female but does not intimate a solar connection.¹⁵ Obviously the resemblance,

¹² Le Moyne, Narr., 13 (ill.), Boston, 1875.

¹³ B. A. E. Bull. 73: 44.

¹⁴ Narratives of Early Virginia, 20, 23, 1606-1625 (New York, 1907); Wm. Strachey, Hist. Trav. Va., 83.

¹⁵ M. R. Harrington, Religion and Ceremonies of the Lenape. Indian Notes and Monographs, Mus. of the Am. Ind., 20, 1921.

in all cases except that of the Chitimacha, is causally connected with the close relations which once existed between the tribes in question, or at least between the Cherokee and Yuchi on one side, and the Yuchi and a part of the Shawnee on the other. A similar belief is of course known to prevail in other parts of the world.

In the Northeast aboriginal ideas on this subject were early obscured by the evolution of the Great Spirit concept which seems to bear some such relation to primitive Indian beliefs as the words and accompanying conceptions of a trade language do to the tongues and the concepts from which they come. In either case it would be as erroneous to attempt to interpret them wholly from the white point of view as to interpret them wholly from the Indian point of view. Most of those ethnologists best entitled to speak for the beliefs of the Indians in this section are now of the opinion that a pre-Columbian concept is involved. The Gicelēmû^ckaong^c of the Unami Delaware or Pa^ctūmawas of the Munsee can be traced too far back to be treated as a European importation, and there is little doubt that the Mātē Hāwātūk of the Menominee, the Kitshi Manidō of the Chippewa, and even the Kechi Niwaskw of the Abnaki have the same validity.¹⁶ Certainly Teharonhiawagon, the major beneficent deity of the Iroquois, has a purely aboriginal setting.¹⁷ The same may be said of the Earth-maker of the Winnebago and Iowa,¹⁸ nor can we accept completely the Wakanda of other western Siouans or the Pawnee Tirawa. The Iroquois universe seems, however, to have been under a dual control reminding us of Zoroastrianism, while that of the Cherokee was in the hands of a democratically functioning association of myth animals. These two last cases and the variations indicated elsewhere warn us not to attempt to cover all tribes with one formula.

¹⁶ Ibid., 18, 19; Alanson Skinner, *Medicine Ceremony of the Menomini, Iowa, and Wahpeton Dakota*, with Notes on the Ceremony among the Ponca, Bungi Ojibwa, and Potawatomi Indians. In the same series; 4, 1920; B. A. E. Bull. 30, art. Abnaki.

¹⁷ B. A. E. Bull. 30, pt. 2, art. Teharonhiawagon.

¹⁸ Paul Radin, B. A. E. Ann. Rep. 37: 285-286; Skinner, op. cit., 189.

CONCLUSIONS

1. Belief in a supreme being closely associated with the sun and with fire is traceable among most of the tribes of the Southeastern cultural province.

2. This association seems to have been much more intimate than in the northeastern province.

3. Variations are discernible, particularly among the Iroquoian tribes, and the Cherokee appear to have been the center of an area in which the solar deity (or supreme being) was feminine.

4. As the Indian tribes most assuredly known to have made earthworks were in the Southeast and some of them traced their origin to the Ohio valley, these facts are of interest to the archaeologist.

BUREAU OF AMERICAN ETHNOLOGY,
SMITHSONIAN INSTITUTION,
WASHINGTON, D. C.

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CREMATION AND THE PRESERVATION OF THE DEAD IN NORTH AMERICA

BY EDWIN OLIVER JAMES

OF THE various methods adopted in the disposal of the dead, cremation and the preservation of the body by a process of mummification (evisceration and embalming) are of special interest inasmuch as they appear to be associated with particular beliefs, and are sometimes apparently a characteristic feature of a race or culture. It is here proposed to examine these rites as they are known to have occurred in North America in the hope that some light may be thrown upon their significance and relationships.

PRESERVATION

Evisceration.—While evidence of attempts to preserve the bodies of the dead is forthcoming from most regions in North America, it does not seem that the methods employed were at all elaborate. Nevertheless, it has been stated that the Maya placed the internal organs of a corpse in jars called *bacubs*, after the four genii Kan, Muluc, Ix, and Cauac, who were supposed to be the upholders of the heavens in the four quarters of the sky.¹ The dead are also alleged to have been embalmed at Yucatan, the priests taking out the entrails, and placing them in large amphorae, ornamented sometimes with human and sometimes with animal heads.² Similarly Captain John Smith during his visit to Virginia in the seventeenth century observed that the Algonquian tribes constituting the Powhatan confederacy,

bowelled the bodies of their kings, dryed them upon hurdles till they bee verie dry, and so about the most of their jointes and necke they hang brace-lets or chaines of copper, pearle, and such like, as they use to weare; theire inwards they stuffe with copper beads and couer with a skin, hatchets and such trash. Then lappe they them very carefully in white skins, and so rowle them in mats for their winding sheetes. And in the tombe, which is an arch

¹ H. de Charency, *Le Mythe de Votan* (Alençon, 1871), 39.

² de Nadaillac, *Prehistoric America*, 302, 1885.

made of mats they lay them orderly. What remaineth of this kinde of wealth their kings haue, they set at their feet in baskets.³

In John White's drawing of the tomb encountered on the coast of North Carolina during Sir Walter Raleigh's second expedition (1585), now preserved in the British Museum, the legend states that "chiefe personages" had

their flesh clene taken of from the bones save the skynn and heare of their heads, wch flesh is dried and enfolded in matts laide at their feete, their bones also being made dry ar covered with deare skynns not altering their forme or proportion.

According to Beverley, the skin was flayed off the bodies of kings in Virginia. The flesh was then removed from the bones leaving the sinews fastened to them. The bones having been dried in the sun were put into the skin again, and the empty places filled with fine white sand. After this the skin (which in the first instance had been slit down the back) was sewed up, with the result that the body presented its natural appearance. To prevent the skin from shrinking or corrupting, it was oiled. The removed flesh was thoroughly dried and sewed up in a basket and set at the feet of the corpse.⁴

Again, at the northwestern extremity of the continent, along the Alaskan coast, an elaborate system of mummification prevailed in recent times consisting of the evisceration of the body, evidently through the pelvis, and its subsequent cleansing from fatty matter. It was then dried and wrapped up in the form of a mummy-bundle except when "the prepared body was placed in a life-like posture, dressed and armed."⁵ The Aleutian islanders embalmed the bodies of the men with dried moss and grass; buried them in their best attire, in a sitting posture, in a strong box, with their darts and instruments; and decorated the tomb with various colored mats, embroidery and paintings.⁶ The mummified remains of a chief named Karkhayahouchak and his relatives were found by Captain Henning in a cave in the island of

³ John Smith, Works 1608-1631 (English Scholars' Library. Ed. E. Arber. No. 16), 75, 1884.

⁴ R. Beverley, History of Virginia, 185, 1772.

⁵ Contributions to North American Ethnology, 1. 90 f., 1887.

⁶ Billing's Expedition, 161, 1802.

Kagamale. The body of the chief was covered with the fine skin of the sea-otter, always a mark of distinction in Aleut interment, and the whole was enclosed in a basket-like structure covered with a fish-net made of the sinews of the sea-lion, and a bird-net. With the body there appeared to be some bulky articles, and such things as wooden vessels, dark green stones used for tanning skins, locks of hair, etc., were doubled up with the mummified remains.⁷ In former days chiefs were eviscerated among the Tsimshian and the body filled with cedar to preserve it,⁸ but the elaborate methods of mummification practised by the Aleut and Kadiak appear to represent a diffusion from Asia rather than a development of the Tsimshian attempts at preservation. Thus the Ainu removed the entrails through the anus just as the Aleut apparently eviscerated through the pelvis without cutting the tissues of the mummy. Both seem to have dried the body in the sun.⁹

Embalmmment.—After the death of an Aztec king, old men, set apart for the purpose, washed the body with aromatic water chiefly extracted from trefoil. Sometimes the intestines were removed and replaced by aromatic substances, but the method does not appear to have been very complete, and it may have been intended only to serve while the body lay in state, for no remains of mummies have been found. The art was an ancient one, however, dating perhaps from the Toltec, yet generally known and practised throughout the whole country. After the body had been embalmed and sprinkled with water, a red dog belonging to the deceased was killed, and both the dog and its master were burned together with various articles of personal property, including slaves. The ashes were collected and placed in a vase or stone coffer, in association with the dead man's lip-plug to serve as a "heart," and buried in a grave lined with stone and lime.¹⁰ In Michoacan at the death of a chief the corpse was washed with "sweet waters" and covered with a fine linen garment; deerskin shoes were placed

⁷ Dall, *Smithsonian Contributions*, 31, 84 ff., 1878.

⁸ Boas, *Tsimshian Mythology*, 337 n.

⁹ Dall, *op. cit.*, 84, 89, 90. *Zeitschrift für Ethnol.*, 5: 13, 34, 1881.

¹⁰ Bancroft, *Native Races*, 2: 603 f.

on his feet, and bells of gold and other ornaments about his ankles and wrists and neck. From his lip a sacred emerald was suspended. Thus arrayed, the body was laid upon a large bier with bow and arrows, and seven women of good family, after they had been washed, and their faces painted yellow, were sacrificed.¹¹

The Congaree Indians of South Carolina, as soon as death occurs,

lay the corpse upon a piece of bark in the sun, seasoning or embalming it with a small root beaten to powder, which looks as red vermilion; the same is mixed with bear's oil, to beautify the hair. After the carcass has laid a day or two in the sun, they remove it and lay it upon crotches cut on purpose for the support thereof from the earth, then they anoint it all over with the prementioned ingredients of the powder of this root, and bear's oil. When it is done, they cover it over very exactly with the bark of the pine or cypress tree, to prevent any rain to fall upon it, sweeping the ground very clean all about it.

Thus it is left till "the flesh grows mellow, and will clean cleave from the bone," when they

get it off and burn it, making the bones very clean, and then anoint them with the ingredients aforesaid, wrapping up the skull (very carefully) in a cloth, artificially woven of possum's hair. The bones they carefully preserve in a wooden box, every year oiling and cleansing them. By these means they preserve them for many ages, that you may see an *Indian* in possession of the bones of his grandfather, or some of his relatives of a longer antiquity.¹²

Mummy-bundles.—In the Mexican plateau and elsewhere the corpse was sometimes bound up in a bundle in the contracted position and secured by a network of ropes. To this a false head and mask were fixed, and the whole decorated with sacred designs. A native picture of a mummy-bundle of a warrior is represented in Codex Magliabecchiano (sheet 60) in the Biblioteca Nazionale, Florence, showing the swathed figure standing upright like the dead Osiris in the Egyptian paintings. On the head is a band with a plate of turquoise-mosaic, blue ear and nose plugs, and the shoulder-band of paper. The hair is decorated with cotton-tails, and feathers and a banner of the Aztec god, Uitzilopochtli, also adorn the head. Beside it is a blue hairless dog, and in the front the gifts to be presented to Mictlantecutli, the god of

¹¹ Gomara, *The Conquest of New Spain*, 386 ff., 1578.

¹² Schoolcraft, *Archives of Aboriginal Knowledge*, 4. 156 f., 1860.

the underworld. Associated with these is a symbol not unlike the *tat* sign buried with Egyptian mummies, but possibly it represents another bundle. The severed head of a woman dying in childbirth or of a wizard is also appended.¹³ In another painting a mummy-bundle is shown enclosed in a cotton cloth fastened with ropes. The corpse is clothed in a mantle of the dead, the head being surmounted by the cotton-ball sign of the gods of the underworld, while the banner of Uitzilopochtli rises from the back. In front is the symbol shown in the former design. Similar bundles are illustrated in varying degrees of formation in the Codex Borbonicus (sheet 28), and in the Sahagun MS. in the Biblioteca del Palacio, Madrid, while the Maya symbol of the so-called "Heavenly Shield" seems to contain two mummy-bundles on either side of the central figure.¹⁴ That the Maya were acquainted with this method of preservation is suggested in the *Popul Vuh*, the sacred book of the Quiche of Guatemala, where the bodies of the first men are said to have been marvellously placed in a bundle known as the "majesty enveloped."¹⁵ If this legend has any historical significance, it would seem that mummification was connected with the "dawn" period in Guatemala since the Quiché leaders before they became mummies sang the song with which they greeted the Sun on its first appearance. The rising of the sun, awaited alike by Quiche and Aztec, was associated with the "dawn of the administration of society," and this, according to Joyce, is connected with the adoption of the solar calendar,¹⁶ which seems to have had its origin among the Maya. If mummification was practised by the early Maya in Guatemala, the recurrence of the custom in the Mexican valley and Michoachan coincides with that of the myth of the immigrant Nahua tribes awaiting the dawn at Teotihuacan.

¹³ Duc de Loubat, Codex Magliabecchiano, 13: 3. (Rome 1904). Cf. Z. Nuttall, The Book of the Life of the Ancient Mexicans, 54 ff., 1903.

¹⁴ E. Seler, Gesammelte Abhandlungen zur amerikanischen Sprach- und Alterthumskunde, 2. 451, 1904. Brinton, Mayan Hieroglyphics, 107 f., 1895.

¹⁵ Brasseur de Bourbourg, Popul Vuh, 195 ff., 1861. Cf. Nouvelles Annales des Voyages, tom. 99: 179, 1843.

¹⁶ Mexican Archaeology, 362.

A survival of the preservation of the body in the form of a mummy-bundle may perhaps be detected in the custom that prevailed in the neighbourhood of Clear lake, California, of doubling up the corpse and wrapping it into a ball with grass ropes, skin, mats and the like, strings of shell-money being added in the case of the wealthy.¹⁷ Since the Alaskan mummies were clothed and doubled up in this manner, these Californian examples may represent a survival of the practice of preservation in the form of bundles. In the Southwestern region, at the Mesa Verde ruins, San Juan, between the ruins and the cliff the body of a child in a partly mummified condition was found at the foot of a wall. The corpse had been shrouded, in the flexed position, in a cloth made of cords wrapped in feathers. Near by was the grave of an adult in a similar state of preservation, wrapped in a kind of mat made of osiers tied together by long cords of yucca. Over the head a bowl was placed. To the north of this, a completely mummified body was discovered, with the head covered with a skin cap and the feet with mocassins, the corpse being wrapped in a net of cords held together with strands of yucca leaf, and wound with strips of hide. Under the mummy lay a mat of withes, while below the head was a block of wood. A similar mat had been spread over the body. In front of the head stood a well-preserved basket half full of maize meal, and beside it lay a small ladle or spoon.¹⁸ The mummification of these remains was undoubtedly the result of the interments having been made in the dry soil, but the care bestowed upon the arrangement of the graves, and the covering of the bodies suggest that the conception of immortality was connected with the preservation of the mortal remains.

Desiccation.—A considerable number of natural mummies have been recorded in the Southwest area. In the Basket-Maker caves of northeastern Arizona the bodies were sometimes wrapped in blankets and woven cloths in the contracted position and strung together in the form of mummy-bundles¹⁹ resembling those de-

¹⁷ Contributions to North American Ethnology, 3: 226, 236, 1877. Bancroft, Native Races, 1: 359.

¹⁸ Nordenskiöld, The Cliff Dwellers of the Mesa Verde, 38 ff., 1893.

¹⁹ Pepper, Amer. Mus. Nat. Hist. Annual, 2, Nos 4, 9, 1902. Guernsey and Kidder, Papers Peabody Mus., 8: 13 ff., 19 f., 1921.

pictured in the Mexican Mss., while at Kinboko in the Kayenta district they were encased in masses of hardened adobe indicating that they had been packed into the cists at the time of interment.²⁰ In the Lower Mimbres valley in southern New Mexico (where at present no evidence of a pre-Pueblo or earlier culture has yet been found) the skeletons were tightly packed in red clay, each one resting separate and alone, with large perforated dishes placed over the faces.²¹ Desiccated remains have been discovered in a cave in the Rio Norzas valley, Durango,²² and in Cave valley, Tarahumare, the saltpetre caves have been used extensively for burial, the bodies found therein having been desiccated intact, with the skin on most of them almost unbroken, and adorned with anklets, shell ornaments, and bracelets of beautifully plaited straw. Next to the skin was a coarse cotton cloth, between the legs a large wad of cotton (sometimes dyed red or indigo) with the feathers of the turkey, the large woodpecker, and the bluejay. Near the head stood a large earthenware jar, and in some cases drinking gourds.²³

In the eastern states similar burials occurred in the saltpetre caves in Kentucky, the mummy in one instance having been placed in a sitting position between broad stones arranged edgewise with a flat stone covering the whole. The body was enveloped in coarse clothes and wrapped in deer skins, the hair of which was shaved off. Utensils, beads, feathers, and other ornaments were enclosed with it in the stone coffin. In the mammoth cave (Kentucky) the body of a woman was in such a remarkable state of preservation that many of the features were discernible. But in none of these natural mummies was there any sign of a suture or incision in the abdomen indicative of the removal of the viscera.²⁴

From this evidence it would seem that while the process of mummification by desiccation was purely natural, yet the fact that the bodies were invariably clad and ornamented with great

²⁰ B.A.E. Bulletin 65: 83, 1919.

²¹ J. Walter Fewkes, Smithsonian Miscellaneous Collections, 63: 50 ff., 1914. C. L. Webster, Archaeology Bulletin, 3: 70, 73.

²² Proc. Anthropol. Soc. Washington, 80, 1879.

²³ Lumholtz, Unknown Mexico, 1: 71 ff., 1903.

²⁴ Trans. and Coll. Amer. Antiq. Soc., 1: 318 ff., 359 f., 362, 1820.

care, or mudded into cists, shows there had been a deliberate intention to preserve the mortal remains in order that thereby the immortality of the body might be secured, a notion that is intimately associated everywhere with the practice of mummification.

In addition to natural desiccation sometimes the body was dried artificially by smoking it over a fire. Thus, for example, in Comagre, while the remains of chiefs were being embalmed, a slow fire of herbs was made at a distance calculated to dry it gradually, until only the skin and bones remained.²⁵ Similarly in Nicaragua a chief after death was wrapped in clothes and suspended by ropes before a fire till the body was baked to dryness; then, after it had been preserved for a year, it was taken to the market-place where it was burned in the belief that the smoke went "to the place where the dead man's soul was."²⁶ It is possible that this practice often accounts for the numerous instances of partial cremation in the cemeteries, and the prominent part played by fire in mortuary ritual. Thus in Florida, where in recent times the dead are said to have been clothed in rich coverings, dried before a fire, and placed in a niche in a cave,²⁷ fragments of half incinerated human bones were found in a mound at Cade's point near Santa Fe lake in association with other skulls showing no signs of the action of fire.²⁸

CREMATION

Partial cremation.—Human bones blackened and embedded in masses of charcoal have been frequently found in the native cemeteries in British Honduras²⁹ and east of the Mississippi,³⁰ some having only been scorched or scarcely touched by fire, while others have been entirely consumed. In a Cherokee mound at Chote in the valley of the Little Tennessee, skulls and other bones were found resting on coals and ashes. A large fire doubtless had been made in the centre of the circle near which the body of a

²⁵ Bancroft, 1: 782.

²⁶ Contrib. to N. Amer. Ethnol., 4: 218, 220 f., 1881.

²⁷ Reutter, De L'embaumement avant et apres J. Xt., 142.

²⁸ American Naturalist, 753, 1878.

²⁹ Gann, B. A. E. Bulletin 64: 127, 1918.

³⁰ H. C. Mercer, Publ. Univ. Penn., 6: 93 ff., 1897. Cf. Bushnell, B.A.E. Bull. 71: 58 f., 1920

chief may have been placed.³¹ Burnt clay sepulchres occur in this district, in one of which a corpse had been placed face upwards and covered with mortar. On this was built a hot fire, so that the body became incased in an entire shield of pottery.³² The remains of part of a human skeleton, the extremities of which were surrounded by stones showing traces of fire and charred wood, were found on the New Jersey bank of Delaware river, below Gloucester city. It appears from the position of the interment and the fact that the bones of the feet had been consumed, that a pit had been dug in which the man was placed erect, and a fire kindled around him.³³ Since no trace of the cranium has been discovered, it may be conjectured that it was severed from the body or burned in accordance with the custom known to have prevailed elsewhere. Thus, in Yucatan when an ancient Cocome king died, his head was cut off and boiled. The flesh was then stripped off, and the skull cut in half, on the front part of which an exact likeness of the deceased was moulded in some plastic substance.³⁴ The Pitt River Indians, in California, also placed the body in the ground in a standing position with the shoulders nearly level with the ground, and cut off the head. After covering up the decapitated body, a bundle of faggots was then laid on the grave on which the head was rested. The pile was fired and the head consumed to ashes.³⁵ On the Northwest coast the Tlingit cut off the head of a warrior killed in battle and erected it in a box supported by two poles over the receptacle which held the ashes.³⁶

Images of the dead.—When the body was completely reduced to ashes, the remains were generally preserved in some vessel such as an urn, and either buried in the ground (sometimes in a stone-lined grave), or placed in a temple or below a dwelling

³¹ B.A.E. Rept. 12: 379, 1894.

³² J. W. Foster, *Prehistoric Races*, 149 ff., 1878. Willcox, *Proc. Acad. Nat. Sci.*, 165 f., 1874.

³³ E. A. Barber, *American Naturalist*, 630, 1878.

³⁴ Landa, *Relations des choses de Yucatan*, 198.

³⁵ Yarrow, B.A.E. Rept. 1: 151, 1881.

³⁶ Niblack, *Report of Smithsonian Institute*, 354 ff., 1888.

house.³⁷ In some cases, however, the ashes were transferred to an image of the deceased or mixed with clay and made into a statue,³⁸ which was treated as the surrogate of the dead man. Thus in Michoacan, after the corpse of a chief had been burned to ashes, the relics were collected and made into an image which was adorned with jewels and a cloak before the remains were finally buried,³⁹ just as the Tarascans collected the ashes of a chief after cremation and made them into a figure which was dressed in the royal garments, and set upon the throne facing east before it was buried in a large urn in a stone-lined grave in front of the temple.⁴⁰ The Maya put some of the ashes of a king in the back of a wooden image of the deceased, covered it with the skin of the occiput, and set it in the temple among the idols with great reverence, incense being burned before it.⁴¹

This ritual treatment of effigies of the dead suggests that they were regarded as having a real connection with the body comparable to that accorded to portrait statues in ancient Egypt. Thus in Mexico, for example, the image of a dead king was dressed in royal insignia, and honored with addresses and presents as though it were the man himself, while in the same district when a trader died away from home, a figure of the deceased was carved in wood, ornamented, and after mourning ceremonies had been performed in conjunction with it, it was cremated and the ashes interred.⁴² The same practice was adopted after a battle. An effigy representing the slain was burned before the temple and some of the ashes scattered upon the relatives, the rest being

³⁷ Landa, *Relations des choses de Yucatan*, 32 f.; Gann, *J.A.I.*, 106, 1905; J de Acosta, *Historia Natural y Moral de las Yndias*, 321 ff., 1590. Sevilla; Mendieta, *Historia eclesiastica Indiana* 358, 1870, Mexico; Brasseur de Bourbourg, *Hist. Nat. Civ.*, 3: 239 ff., 407 ff.; Fewkes, *B. A. E. Bull.* 51: 39, 1911; *Records of the Past*, 9: 155, 1910; *B. A. E. Rept.* 22: 175, 1904; *Smithsonian Misc. Coll.*, 63: 51, 1914; Hodge, *Art and Archaeology*, 7: 378, 1918; *Mus. Amer. Ind.*, Heye Foundation, 3: 54 ff., 1920; Matthews, *Memoir Nat. Acad. of Sci.*, 6: 149; Cushing, *Congrès des Americanistes*, 171 f., 1890; Swanton, *Jesup Expedition*, 5.51 ff., 132 ff.

³⁸ Purchas, *His Pilgrimage*, 675; Prescott, *Conquest of Mexico*, 78, 218, 1904.

³⁹ Gomara, *Conquest of New Spain*, 386 f.

⁴⁰ Purchas, *op. cit.*, 675.

⁴¹ Landa, *Relation des choses Yucatan*, 198.

⁴² Mendieta, *Historia eclesiastica Indiana*, 358.

buried.⁴³ Along the Northwest coast, portrait figures have been found at Kitwankool, between Skeena and Nass rivers in British Columbia, the skill of the artist having been concentrated on the features and expression "to make them as lifelike as possible." In one image which originally had been clothed and ornamented, the cremated remains of the deceased were found concealed in the trunk. The life-like effigy of a man who had committed suicide occurred in a small wooden grave-house at Kitzegukela, on Skeena river, completely clothed and seated on the box that contained the cremated remains of his body. At Aiyansh on Nass river, a wooden image of a chief who had been killed by the Haida, was exhibited and clothed at family feasts. There are traditions of similar statues in the neighborhood at points where men had died on the trail, and had been cremated. In some instances the hair of the departed was inserted into small holes in the head of these *kitumghun* (men of wood).⁴⁴

Three large wooden posts representing human figures and several subordinate posts have been found at Tununuk village, Cape Vancouver, arranged in a row parallel to the beach, and across the front of the kashim or central dwelling. These were said to represent people who had been lost and their bodies never recovered. The top of each post was carved in the form of a human head and neck, and the one that was set up for a woman who had been buried by a landslide, was covered with a fur hood; the mouth and eyes were made of ivory, inlaid in the wood, and walrus tusks inserted for arms and legs.⁴⁵ Each year, for five years succeeding the death, a new coat or cloth shirt was put on the figure at the Feast of the Dead and offerings made to it, and this custom prevailed even when the post had been erected for a person whose body was preserved in its grave box.⁴⁶ The cemeteries of the villages in this district were full of carved images of this sort, some of which had wooden masks representing the human face with inlaid ivory eyes and mouths, and votive offerings in abundance hanging from various parts of the body.

⁴³ Brasseur de Bourbourg, *Hist. Nat.*, iv., 3. 239 ff., 407 ff.

⁴⁴ *Amer. Anthropol.*, n. s., 16: 62 ff., 1914.

⁴⁵ B. A. E. Rept. 18: 317 ff., 1899.

⁴⁶ *Op. cit.*, 318.

The Diegueño, formerly living in or around San Diego, California, at the fiesta of the images, made effigies of eagle feathers, matting and cloth, which were supposed to contain the soul of the deceased. The face of the portrait was covered with cloth, and the mouth was painted red outside and black within, the teeth being shaped in pearls. The eyes were of abalone shell, with the pupil of black wax. The characteristic features of the dead man the image represented were reproduced as closely as possible; bunches of eagle and of yellow-hammer feathers were stuck upon the shoulders, and strings of beads and other ornaments disposed upon it. Around the neck was hung a net holding two tiny ollas to contain food and drink for the ghost on its journey to the spirit-world. The soul occupied it as soon as it was completed, and when the fiesta (a ceremonial dance held every night for a week) was over, the image was burned together with offerings of blankets, clothing and other articles, in order to set free the soul.⁴⁷

This ceremony is very suggestive of some vital connection existing between preservation and cremation since the effigy was made to represent the likeness of the deceased, and clearly it was thought to contain his soul like the portrait statue. Therefore, if the image was an equivalent of the real body, its having been burnt at the end of the rite to free the soul, forges another link in the chain connecting cremation with the preservation of the dead. All the evidence points to preservation being the earlier of these two methods of disposal in North America, just as psychologically it would seem to be the more natural and primitive attitude towards the body when it was supposed to survive the catastrophe of death. So long as it was thought that the physical integument played an essential part in the continuation of the life of the individual beyond the grave, attempts would inevitably be made to preserve it. But the technical difficulties attendant upon the more elaborate processes of mummification would almost certainly react in favor of the adoption of simpler methods to achieve this end. Sometimes only the head was preserved or

⁴⁷ Contrib. Mus. Amer. Ind., Heye Foundation, 5: 9 ff., 1919. Cf. Amer. Anthrop., n. s., 7: 625 f., 1905.

the body was dried by fire, or the corpse was tied up in a bundle with preservative substances, or desiccated by natural means. Images of the dead were also employed as substitutes for the mortal remains, and these were treated as the real person. To bring about the transformation of the image into the man, parts of the corpse or the ashes of the cremated body were transferred to it. In some cases the preservation of the bones seems to have been adopted instead of mummification,⁴⁸ and secondary burial may often be the result of a systematic attempt to preserve the actual body intact.

The introduction of images of the dead would tend to magnify the importance of the spiritual entity at the expense of the body, till the external embodiment, be it either the remains or their surrogate, gradually may have lost its significance in the process of securing the release of the soul. Thus, in California the ashes of the cremated corpse were scattered in the air

to give the disembodied spirit wings, so that it mounts up to hover for ever in the upper regions.⁴⁹

This belief is obviously a development of the Senel notion of the soul being set free and purified by the flames of the pyre, and borne up in the chariots of smoke toward the sun to fly away to the Happy Western Land.⁵⁰ Nevertheless, when the body was destroyed by fire the preliminary rites frequently contained indications of attempts at preservation having been made in former times, as, for example, in the Aztec custom of washing the corpse in aromatic waters before placing it on the pyre. In the third of the series of pictures depicting the Michoacan funeral rites in the sixteenth century Spanish Ms., *Relacion de las ceremonias y ritos de Michoacan*, the actual mummy is represented, swathed in rolls of cotton, being carried on the heads of four bearers to be consumed on a blazing fire. Similarly in a painting at Chichen Itza in Yucatan, the preparation of a corpse for cremation is shown with the body opened

⁴⁸ Brinton, *Myths of the New World*, 257, 1876.

⁴⁹ Powers, *Contributions to North American Ethnology*, 3, 1877.

⁵⁰ *Op. cit.*, 169 ff.

to extract the heart and viscera which, after being charred, are to be preserved in a stone urn with cinnabar, where the writer found them in 1875 ⁵¹

There is therefore reason to think that mummification lay behind the practice of cremation.

The origin and distribution of cremation.—If this was so, there should be some mechanisms to account for the transition of these two diametrically opposed methods of disposal. In the evidence before us we find cremation and preservation both associated with the making of images of the dead, and with the desiccation of the body by fire. As body and soul became separated by the transference of the "life" of the deceased to his portrait statue or its equivalent, attention would be directed naturally more and more away from the body, and if the corpse was accidentally burned in the process of desiccation, it may have led to, or at any rate stimulated, the practice of cremation as a means towards dissolution. Moreover, in the case of nomadic people, among whom cremation was very prevalent, practical considerations concerning the carrying about of the mummy doubtless played an important part, subconsciously if not consciously, in the elimination of the body from eschatological speculations.

In Central America, Joyce has shown that cremation probably belonged essentially to the invading hunting tribes who introduced certain Mexican customs and beliefs into the Maya region.⁵² The Nahua are said to have burned their chiefs so as to be able to carry their ashes about with them in their migrations, although according to Sahagun, the Chichimec originally buried their dead in the ground.⁵³ Interment probably was typical of the Toltec culture, and among the modern Maya cremation is never practised.⁵⁴ There is no evidence of its occurrence at any time in Guatemala,⁵⁵ or among the Huastec, Mixtec or Zapotec, and in Yucatan it seems to have been reserved for the ruling class.

⁵¹ Le Plongeon, *Queen Moo and the Egyptian Sphinx*, 138, 1896.

⁵² *Mexican Archaeology*, 103, 276.

⁵³ *Hist. Gen.* 3, Book 10, 141.

⁵⁴ Tozzer, *Comparative Study of Mayas and Lacandonones*, 49, 1907.

⁵⁵ Gordon, however, thinks that the caverns near Copan were repositories for cremated remains. *Memoirs Peabody Museum*, 1, No. 5, 1898.

In the Southwest area it was practised in prehistoric times on the Salt and Gila rivers, in southern Arizona, in the lower reaches of the San Francisco, and in the valley of the Little Colorado. It was unknown, however, apparently in southern New Mexico, in the Chihuahua basin, and if it occurred in the San Juan—the most characteristic centre of Southwestern civilization—very few traces of its presence have been revealed as yet. This sporadic distribution is suggestive of the practice having been a distinctive feature of a particular stock, possibly a ruling group, as in the Central region, that migrated into Arizona and continued its mortuary customs but without modifying to any extent the prevailing practice of the rest of the population. There is no evidence of the transition of preservation into cremation here, except perhaps in the statement of Fewkes that the bodies of those who were cremated at Cliff Palace were probably dried before they were burned. If the two methods were connected, this would seem to suggest that cremation was definitely established before those who had adopted it reached the district. The absence of images of the dead points to this conclusion, if, as we have suggested, they constitute a connecting link between the two customs. The other methods of disposal usually adopted for the more distinguished members of a community are also notably absent, no traces of embalming, platform burial, earth mounds, and except in isolated cases, of stone-lined graves having been found in the Southwest region. It is therefore conceivable that the area was inhabited for the most part by commoners, groups of rulers only having penetrated into certain districts such as the valleys of the Little Colorado, Gila and Salt rivers, where they retained their customary method of disposal (cremation) for a time. till at length the modern natives returned to the more general practice of interment.

While the Mound-builders practised both cremation and preservation, the occurrence of the rites was very sporadic. So far as we know at present, the more elaborate attempts at mummification were confined to Virginia, though embalming has been found in South Carolina. Partial cremation seems to have been more prevalent than the burning of the body in its entirety, the

latter belonging essentially to the neighborhood of the Lakes and the Southeast district. A tendency to a decline in culture is discernible in the Eastern states, the earlier civilization characterized by the stone graves being superior in many respects to that of the modern native tribes, though inferior to the great civilization of the Central area. But it was on the plains that the disintegration of culture through migration and racial admixture was most complete. There cult practices and beliefs were in a constant state of flux, and if preservation or cremation ever existed, no traces of either have survived. In California, on the other hand, although the culture generally remained in a thoroughly primitive state, cremation was usually the alternative method of disposal to inhumation, and it was especially conspicuous in the Colorado valley in the south, and to the north in the neighborhood of the Columbia and Russian rivers.

The distribution of cremation among the northern Pacific tribes suggests that the cremating people (Tlingit, Tsimshian, Haida, northern Kwakiutl, Tahltan, Loucheux, Carrier, and Sikanni) represent a distinct culture from the non-cremating Nootka, Coast Salish, and southern Kwakiutl. True, traces of the rite occur sporadically in the Thompson River valley and elsewhere in British Columbia,⁵⁶ but it was only among the three northerly peoples that it obtained as a definitely established culture. It was widely adopted among the northern Tlingit, but shamans were always buried in a large wooden sarcophagus covered with hieroglyphic figures, and for others inhumation was not uncommon in this district.⁵⁷ Christian burial is now rapidly supplanting the native modes of disposal, but cremation still survives in the north, the ashes being deposited in boxes in a small house or in a secluded spot. The common centre of the practice in this area was probably the Tsimshian, from whom it was diffused to the Carrier and Kwakiutl,⁵⁸ and who also in former days eviscerated the body of a chief, filling it with cedar bark

⁵⁶ Jesup Expedition, 2: 548, 554. *Archaeological Collections in British Columbia* 37, 1913, Ottawa.

⁵⁷ Niblack, *Report Smithsonian Institute*, 354 ff., 1888.

⁵⁸ MacLeod, *Amer. Anthropol.*, n.s., 27: 122, 1925.

to preserve it.⁵⁹ The fact that shamans were never cremated suggests a possible connection with the Southwest, where at Casa Grande priests were buried while the rest of the people apparently were cremated.⁶⁰ The immolation of the widow and the widower on the funeral pyre has a parallel among the Natchez, where the surviving partner was strangled upon the death of the husband or wife.⁶¹ It would seem probable, all things considered, that the rite came from the south, and made its way inland from the coastal tribes rather than from Siberia.⁶²

The sporadic distribution of cremation throughout the continent favours the view that it belonged essentially to the culture of one special group of immigrants, as Rivers has suggested was the case in the Pacific,⁶³ though it would seem that ultimately it may have been derived from, rather than added to, the custom of preservation. If this was so, it is conceivable that the transition was facilitated by the accidental burning of the body during the process of desiccation by fire and practical considerations connected with the transit of the remains among nomadic people. Nevertheless, cremation would be an exceedingly difficult mode of disposal to introduce into a new environment, whether by culture contact or independent invention, unless the body had ceased to be regarded as essential to the attainment of immortality. On the other hand, if the notion prevailed that an entity independent of the body came into being at death (the ghost) having its destined abode in the sky, nothing would be more convenient as a vehicle for the ascent of the departing soul than a chariot of smoke. Thus, in California it is definitely asserted that the human spirit is carried to the sun by the flames of the pyre, just as in the Tyrian version of the Greek legend, Herakles is said to have passed to the heavens in the smoke of his own pyre.⁶⁴

⁵⁹ Boas, *Tsimshian Mythology*, 337n.

⁶⁰ Cushing, *Congr s des Am ricanistes*, 7th Session, 171 ff., Berlin 1890. Cf. B. A. E. Rept. 28: 190, 1912.

⁶¹ *Amer. Anthropol.*, n.s., 27: 127, 1925.

⁶² *Op. cit.*, 128.

⁶³ *History of Melanesian Society*, 2: 546 ff.

⁶⁴ Sophocles, *Trachiniae*, 1191 ff.; Hyginus, *Fab.* 36. Cf. Farnell, *Greek Hero Cults*, 171 ff., Oxford, 1921.

Smoke and fire have been widely thought to be a means by which immortality is secured. Thus, in the New Hebrides the soul was believed to rise to the sun on the fire kindled at the grave⁶⁵ and in the story of Isis in the house of the king of Byblus, of Demeter in the house of the king of Eleusis, and of Thetis in the house of her mortal husband Peleus, immortality was conferred on the infant sons of kings by burning them in the fire. The Semitic custom of passing children through the fire was apparently prompted largely by the belief that fire released all things from "the bondage of corruption," converting "our material nature into an immaterial."⁶⁶ In Brahman ritual "three sacred fires were kindled to assist the soul in its ascent to the sky."⁶⁷ It is therefore not improbable that in North America also the fires which figure in funerary ritual originally were associated with the desiccation of the body and the transportation of the ghost to the spirit world. This, however, is not to deny that they served other purposes, too, as, for example, the giving of warmth and protection from wild animals to grave-watchers, and comfort and guidance to the ghost on its journey. But these are probably later interpretations of an earlier use for practical purposes connected first with the preservation and then with the dissolution of the body.

Again, cremation was sometimes associated with libations and incense which in Egypt were thought to have had magical properties in the re-animation of the dead, and to have been the means by which immortality was secured. Thus, as libations of Nile water, "the fluid which issued from Osiris," was calculated to restore the vital fluids that had escaped during the process of embalming,⁶⁸ so the Aztec poured water over the head of the embalmed body before it was cremated. Incense was assigned similar powers, while its smoke was supposed to form a material vehicle on which the souls of the departed ascended to the sky.⁶⁹

⁶⁵ Turner, Samoa, 335, 1884.

⁶⁶ Iamblichus, *De Mysteriis*, 12.

⁶⁷ Monier-Williams, *Brahmanism and Hinduism*, 283 f., 1887.

⁶⁸ A. M. Blackman, *Zeitschrift für Ägyptische Sprache und Altertumskunde*, 69 ff., 1912.

⁶⁹ Budge, *Osiris and Egyptian Resurrection*, 2. 255. Jastrow, *Religion of Baby-*

This belief, that incense was both a revivifying agent and a vehicle of the soul, may have suggested the notion of getting the dead to the sky in a chariot of smoke, and thus prepared the way for the systematic ritual burning of the body as a means of transporting the soul to the sky.

Cremation and the belief in a celestial abode of the dead.—While cremation was frequently connected with this belief that the dead go to the sun or some other part of the sky, the practice was by no means always associated in North America with a celestial afterworld. This is particularly conspicuous in the case of the Hare Indians, who, though they regarded the burning of the body as essential to the attainment of the spirit-world, made the route to the land of the dead lead through a subterranean region.⁷⁰ Against this, however, it may be argued that our knowledge of the eschatology of this district is very limited, and there is unmistakable evidence of the sky-world figuring in their mythology. The central Eskimo, for instance, placed their happy land (*Qudlivun* "the uppermost ones") in the sky,⁷¹ and in Greenland one of the abodes of the dead was in the upper region,⁷² like the Tlingit "Ghosts' Home" above the plane of this world. Warriors who died in battle became *Keeyeks*, "upper ones," dwelling in the region illuminated by the aurora borealis.⁷³ The Haida called the abode of bliss *keewuck*, "above," within which was a still brighter spot (*keewuckow*, "life above"), the home of perennial youth, whither the souls of fallen warriors took their flight.⁷⁴ According to Harrison, the good land was called *shatlidge*, "the land above," where the Good Chief reigned and whither the souls of good Indians were taken by his emissaries to live an idealized earthly life.⁷⁵

lonia and Assyria, 281, 346, 575, 1898; Skeat-Blagden, *Pagan Races of Malay Peninsula*, 2: 98, 352 f., 1906.

⁷⁰ Hill-Tout, *British North America*, 178 ff., 1907.

⁷¹ B. A. E. Rept. 6: 584 f., 1888.

⁷² Op. cit., 590.

⁷³ Dall, *Alaska and its Resources*, 145, 422; Swanton, B. A. E. Rept. 26: 430.

⁷⁴ Dawson, *Report Geol. Survey Canada*, p. 121 ff., 1879.

⁷⁵ J. A. I., 21: 18 ff., 1891. Cf. Swanton, *Publ. Amer. Ethnol. Soc.*, 3: 5-55, 1912.

These examples suffice to show that the notion of a celestial hereafter was well established in the north Pacific coast and the surrounding district although it was not connected with the practice of cremation. If originally the two were related, as in California (Clear lake), the dissociation is probably the result of the complications that inevitably arise among migrating people through the fusion of two or more sets of beliefs, and the re-interpretation of traditional customs. Thus, when burial forms begin to be stereotyped by tradition they tend to influence beliefs about the locality and nature of the abode of the dead because their original purpose has been forgotten, as, for instance, when fire used for drying the corpse was assigned an eschatological significance. In course of time these beliefs have reacted upon the ritual under the guidance of priests and medicine-men, and certain customs have become definitely associated with the life or destination of the soul after death. But with the migration of tribes from one region to another, the tendency seems to have been to regard the original home as the land of the dead whither ghosts returned at death. This belief has frequently influenced not only the mode of disposal but also such aspects of funerary ritual as the orientation of the body, and the provision made for the journey to the ancestral spirit-world, till finally the actual abode of the dead may have lost its original character and become a distant land either beyond the sea, or in a mythical region or island of the blest. Thus, the belief that the cremating section of a tribe went to the sky may have been succeeded by a secondary belief resulting from migration, and in this way a confusion between doctrine and practice has arisen. That something like this occurred in the New World is suggested by the abode of the dead being frequently a combination of the upper and under worlds, and a western terrestrial paradise connected with the sun and the horizon.

In a country like North America where movements of people have been a constant factor in most areas in the determination of culture, social classes or sections of the community in a particular region may often represent settlers from outside. This would doubtless cause the culture associated with the immigrant people

to recur among the indigenous tribes where the former established themselves, and the differences between the two would be especially marked in the case of burial customs and beliefs emphasizing a division of a community into two parts with separate destinies. Where alternative hereafters and methods of disposal have been the result of race fusion, or the migration of a group of people practising particular rites into a given area, the culture of the immigrant people has tended to recur among the indigenous tribes but in a modified form. Sometimes only the rite has remained and this in process of time has either become incorporated into the existing cult or taken over an entirely new significance. Throughout these changes the ritual, being more stable than doctrine, has generally survived, but only at the price of losing its original meaning.

With the break-up of culture through migration and racial admixture, the cult practices and beliefs have been in a constant state of flux. Homes of the dead have multiplied and changed places, methods of burial and their accompanying rites have taken over new meanings, so that fires at one time used to preserve or cremate the body have been employed to warm both the mourner by the grave-side and the ghost on its way to the spirit-world. As races and groups became merged, the original class and race distinctions were less rigidly maintained, just as the relation between methods of burial and the abode of the dead were more and more obscured. Cremation (or raised burial) which at one time seems to have been reserved for the ruling class where any such distinction was made, was later employed for everybody, or, as in the valleys of the Salt, Gila and Little Colorado rivers, adopted sporadically without any very apparent reason. All this points to the later developments of funerary ritual in North America belonging essentially to an artificial stage of human society created by such events as tribal migrations and racial fusion reacting on the method of disposal in its relation to the abode of the soul. But an analysis of the data suggests that the practice of cremation originally grew out of the attempt to preserve the body when the mortal remains came to occupy a position of secondary importance in the attainment of the immortality of the soul.

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⁷⁶ This bibliography contains the works which have been consulted in the collection of material from which this Ms. has been prepared. It covers, however, a wider field than the two aspects of mortuary ritual here discussed.

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CALIFORNIA AND THE NORTH PACIFIC COAST

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EXETER COLLEGE,
OXFORD, ENGLAND

THE LEAD GLAZE DECORATED POTTERY OF THE PUEBLO REGION

BY WALTER HOUGH

NO OTHER product of ancient material culture is more valuable in archaeological investigation than ceramics.

These imperishable vessels, or the sherds strewn in the debris of ruins are in fact of basal importance in reading the records of the past, and of course, like all other instrumentalities, are to be used with scientific caution. The gradual development of the study of Pueblo archaeology has brought into the field with the newer school of investigators the method of stratigraphy based on ceramics. This method with its important results is an introduction of the European method whereby cultural sequences are determined.

The following remarks refer to the time status of lead glaze decorated pottery occurring in certain parts of the Pueblo area and of its value as a determinant in the stratigraphic column.

The recent acquisition by Victor J. Evans of a small collection of prehistoric pottery from a ruin at Pinedale, Arizona, has extended our knowledge of the peripheral distribution of the green glaze decoration of ancient Pueblo pottery, a type collected and described by the writer in 1901 in the Annual Report of the United States National Museum of that year. A specimen in the Evans collection of special interest is a vase of good form decorated in black on red over the globular body, and green glaze on white around the neck. The vase had an animal head handle projecting from the neck collar. The unusual combination of decoration observed on the vase appears to affiliate it with specimens high in art merit found at Forestdale, Arizona, a typical black on white and red ware pueblo, a very far outlier of the Mesa Verde Chaco canyon culture. (See pl. 9, Hough, 1901.) The Evans vase has a red body and a white collar. The animal handle is missing. The body has black diagonally inclined decoration between two black continuous bands. The upper band is in green glaze, the

collar is decorated with a band of two sections of dentated ornament in green glaze. The vase shows in all respects superior workmanship. It also represents the southernmost extension of the glaze decoration ware. It is of especial interest as a combination of the glaze and ordinary decoration.

Distribution.—The discoveries of recent years have tended to outline the periphery of the glaze decoration ware and to indicate with some accuracy its focus, perhaps its point of origin.

In New Mexico the ware does not cross the divide of the San Juan at the north. The principal localities explored are Pecos (Kidder, 1915, 1924), southeast of Santa Fe; the Galisteo basin (Nelson, 1914), south of Santa Fe; Pajarito plateau (Hewett, 1909), northeast; and the Jemez plateau (Hewett, 1906), west of Santa Fe. Southward along the Rio Grande shards have been picked up here and there to Las Cruces. In the region southwest of Santa Fe, including old Laguna and Acoma, there appear to be no data but at the Zuni ruin of Hawaikuh (Hodge, 1923, Kroeber, 1916), there is an interesting sequence. Westward of Zuni and mostly south of the Puerco and Little Colorado the ware has been collected at a number of sites as Petrified Forest of Arizona, and Bidahuci (Hough, 1901). Sporadic pieces occur as far west as Chevelon (Fewkes, 1896), and on the southern divide at Chaves pass and Pinedale. Nelson (1916) sketched the distribution more broadly, showing that the area in which glaze ware is found is about 20,000 square miles. Within this region it is, as explained, quite sporadic in its occurrence.

The distribution indicates that there are two foci of the glaze, the first and more important in the Zuni valley and the second in the Santa Fe region. Dr. Kidder (1924) states that glaze paint began earlier in the Little Colorado than on the Rio Grande, and this inference appears to me to be tenable and to narrow down the problem of its origin.

Technic.—In few cases does the handling of the glaze decoration medium indicate a command of the method of its preparation. It is seen that material was pasty and not free-flowing and even if applied in the meticulous lines of the skillful Pueblo woman designer had a tendency to run or spread distortingly on firing,

to become opaque, showing greenish only in thin places and on the margins. The finished decoration is rough to the feel and has at times considerable relief and opacity. This might be expected to follow the employment of glaze medium for line decoration by the earlier European method where later the true function of glaze to cover surfaces was accomplished in the uniform temperature of an oven. European methods of using lead glaze at the time of the Conquest was by applying the glaze in lines and not over the surface (Janvier, 1880). The folk glazed ware of Mexico shows an analogous situation. The fact is that the Pueblo fused the glaze in a heap oven of vegetal fuel with its gases and free carbon like the Spanish potters. Firing with sheep dung or coal would offer greater probabilities of success in handling this glaze. It is evident that among those knowing the method of compounding this paint there was much variation in the technique. The glaze process is the only one of its kind found in the Pueblo region. It evidently is a compound, while all other decorative materials are simple earths. This renders the unique glaze decoration highly interesting and it would seem to require careful consideration before accepting it as an indigenous art. If it is native then it would appear that certain of the Pueblo Indians had taken the first step in the production of an all-over glaze. Likewise, nowhere else on this hemisphere had such a process been invented. Analysis of the material of the glaze reveals the presence of lead in the form of a silicate (Kidder, 1924), which is true of the immemorial European lead glaze.

Occurrence of lead.—Something may be learned from the distribution of lead in the region where the glaze paint occurs. The reports of the U. S. Geological Survey on mineral resources show that lead is infrequent or missing entirely over great areas. In the Socorro-Magdalena region lead with zinc occurs abundantly. It is necessary that the lead for the glaze be in the form of an oxide. In this state it would be found on the outcrop of a lead deposit or as more or less oxidized pieces in drift. Galena has been found in a few instances interred with the dead, the explanation being that it was kept on account of its rarity, brightness, and weight. A small piece formed part of a medicine man's outfit

(Hough, 1901). On the whole it may be concluded that the opportunities for getting acquainted with lead ores, especially oxidized ores in the Pueblo region, were so few as to be negligible.

Soft or ordinary muffle heat colors.—Fluxed paints are prepared of, say, lead (red lead), quartz sand, and borax, forming on proper manipulation a flux with which was mixed the color desired. This flux, usually in the form of a very fine powder, was applied with the use of a medium, as water, honey, turpentine, or oil. A flux of this kind might, on firing, show a color, say, green from iron, purple or black from manganese, due to impurities in the constituents. In Europe, however, manganese was added to produce a black. If not fired in a muffle or close oven the color might become black from sulphur or changed unfavorably by other fumes.

Temperature.—The temperatures reached by the Pueblo open fire or heap oven using vegetal fuel is not known and must depend upon the character of the fuel and other circumstances. A very dull red heat, about 977 Fahr., is sufficient to bake common earthenware, but it is reasonable to believe that a dull red, 1292 Fahr., to a brighter red, 1472 Fahr., was attained and produced better results. It is probable that the glaze paint fused at the brighter red stage. With a self-consuming oven built of slabs of sheep dung the Hopi appear from eye estimate in daylight to get a higher temperature. Samples of hard burned earthenware distorted by heat and even rendered scoriaceous in part found in ancient pottery burning places accompanied with cinders and pieces of burnt slate indicate high heats produced by the use of coal (Hough, 1901; Hodge, 1904). There are no data as to the use of coal in any other locality.

With fluxed paints as well as glazes it is necessary that the firing of the ware be at a temperature to accommodate the fluxing of the glaze. Potters find that by varying the amount of lead it is possible to adapt the glaze to any kind of ware, more lead giving a glaze fluxing at low heat. As glaze is absorbed by soft earthenware it is necessary to cover the surface with a slip or perhaps to render the ware less pervious by pressure polishing. These devices were used in connection with the glaze paint decoration, though

it must be said that they were known by Pueblo potters long anterior to the latter method. The slip covering to prevent the absorption of glaze was also practised in Europe.

History.—The first reference to glazed ware in the literature is by Bandelier (1892), who observed it at Potrero Quemado. Evidently Bandelier felt at the time that it was an anomaly requiring explanation.

The greater or less decoration of pottery in the Southwest is owing to local conditions. But the introduction of a new material for decorative purposes is another thing. It may have taken place at the Rito de los Frijoles; but ruins north of that place (for instance, the Puye) also exhibit it. It is a chronological as well as an ethnological indication, pointing to a discovery made at a certain time, possibly by one tribe and communicated by it to its neighbors until it became the property of several. It would be very interesting, therefore, to discover what this coarse glaze was made of. I have diligently inquired of the Indians, but without success, and it seems to be a lost art. If it was based upon the use of some special mineral ingredient, we might discover where that ingredient came from, and whether the invention was made at some particular place, or was evoked simultaneously among different tribes. But the glazed pottery shows rather a decadence than improvement; it is coarser in texture, and although the patterns of the designs are nearly the same as those of older varieties, the glossy covering is thick and coarse. (Pp. 184-185.)

Professor Holmes (1905) in his notes on the explorations of 1889, speaks of finding greenish glaze decoration on shards at San Juan de Jemez and Astialakwa. At the ruin of Giusewa he observed that the glaze shards prevalent in the vicinity were not included in the walls of buildings, giving negative evidence "that this ware was not made here in pre-Spanish times" (p. 205). Mr. Holmes at that period was convinced that the glaze decoration was in all probability Spanish.

Age.—In general we find, excluding the early or formative periods which have been assigned to Pueblo ceramics, where definite types can with difficulty be distinguished, there are three characteristic classes in order of age, namely, black on white, colored wares, and glaze decoration wares. The latter are frequently associated with the colored wares but never with black on white. In technic the red ware occurring with later black on white is identical with the black on white and marks the beginning

of red slip or wash. As the ware does not occur in ceramic remains definitely of the Hopi colored ware group, this point may have bearing on the migrations of the Hopi clans, especially the clans of southern origin. That there was no contact with the Zuni and Santa Fe foci bringing the glaze decoration to the Hopi is noteworthy, indicating that the colored wares of the southern and perhaps eastern clans are, in the main, older than the glaze period. Bearing on the time element of the glaze decoration are the migrations from the Rio Grande westward to sites in Tusayan. Migrations are believed to have taken place both before and after the Conquest. Yet no people brought with them glaze decoration. Rarely fragments of glaze ware are found on the surface at Awatobi, where traces of Spanish occupation are seen. This accords with the idea that glaze was later on the Rio Grande than in the Little Colorado focus, perhaps late 17th century.

In view of the great ceremonial importance of the color, it is allowable to assert that there was a demand, even a great desire for green as a decorative element in Pueblo ceramics. The palette, simple black and white at first, became enlarged with the polychrome wares and in the Sikyatki period reached its highest development in the appreciation of tints or shades, stippling, pouncing, and other skilful handling of color. Green, which was presumably known in vegetal dyes and certainly in copper mineral pigments, could not be fired on pottery with these. Evidently many experiments were necessary to produce the range of pottery colors mentioned. In the course of long continued experiments there is a possibility that a glaze pigment having the desirable green could have been developed, but in this respect the difficulties are not minimized. The Pueblo potter as an experimenter is granted, and the variety of flat, mostly iron, earth colors which she developed, is good evidence, but that she could take the step to glaze which appears to have arisen in the line of smelting metals is doubtful. A fact that may be considered as bearing on this subject is that lead glaze did not survive to the present while the immemorial iron colors are used in the areas where the lead glaze was formerly most prevalent. This may be taken as an argument that the glaze was not an indigenous art.

CONCLUSIONS

Hodge (1923) finds on the basis of stratification that this ware is present in a prehistoric layer at Hawaikuh. His full report therefore is awaited with interest. Hawaikuh was seen in 1539, a mission was founded there in 1629, and the pueblo was abandoned in 1670. The pueblo, therefore, was inhabited for 131 years during the Spanish occupation, a considerable period of which there is no history, at least on that dealing with cultural changes due to contact with the whites. This will no doubt be remedied to some extent when the results of Mr. Hodge's exploration are published.

On the whole a critical examination of the question as to the use in prehistoric times of lead glaze decoration by the Pueblo Indians brings forward a number of points which seem to render the assumption doubtful if not improbable. On the one hand the evidence seems to show that the art may be accultural, derived from Spain either direct to the Zuni focus, or coming in through Mexico somewhat later during the settlement of the Southwest. On the other hand, from the stratigraphic methods developed by modern explorers, a prehistoric status is asserted. It seems, therefore, that the matter presented above is a critique on Pueblo stratigraphy.

U. S. NATIONAL MUSEUM,
WASHINGTON, D. C.

GASPAR ANTONIO CHI, INTERPRETER¹

By FRANS BLOM

WHOEVER studies the early history of Spanish America can not but be acquainted with the questionnaires sent out by King Charles V of Spain to all Spanish colonies, with the object of gathering information relating to the history, geography, and life in his new possessions.

These questionnaires, containing fifty questions, were sent out from the capitals of each province to every Spaniard who had taken part in the conquest of the New World or who had received grants of land from the crown. The answers are a mine of information. In many cases we should know scarcely anything about large sections of New Spain were it not for these documents.

That many of the Conquistadores were not writers is apparent; nor were they interested in giving long reports. Therefore, most of the answers are meager; but now and then we find a man who set to the task of recording facts and events with energy; and, thanks to these few, we may now form a picture of how the aboriginal inhabitants of Central and South America lived and worshipped in the first century after the Conquest.

While reading the volume containing the reports from Merida in Yucatan,² I noted that many of the questions had been answered by the same person. As a matter of fact, the answers were often identical, word for word. Then I discovered that wherever this was the case, the Spaniard supposed to give the report had sought aid from one

Gaspar Antonio Chi, interpreter, Indian, native of this country (Yucatan), born at Mani, scholar, sagacious in the Castillian language, as well as the Mexican and his native tongue.

Gaspar Antonio, as he was called by the Spaniards, is well known from many documents. He is the "Interpreter," and

¹ Dedicated to Ralph L. Roys, Associate in Maya Language, Department of Middle American Research, Tulane University of Louisiana, New Orleans, La.

² *Relaciones de Yucatan*, 1, 1898.

apparently a secondary person, but in fact a man who played an important part in the early Spanish history of Yucatan. His personality so attracted me that I started to collect all the data I could possibly find concerning him.

From 1579 to 1581, Gaspar Antonio lived in Merida. It was at this time that the questionnaires were distributed. Many of the Conquerors who had settled in Yucatan after the founding of Merida, in 1542, were now old, and never were writers, so they went to Gaspar Antonio, interpreter of the royal crown, to ask his aid in answering the King's irritating questions regarding the ancient history and heathen religion of that country. Gaspar Antonio gladly helped them and also took the opportunity to express his frank opinion of some of the bad customs the Spaniards had introduced. The Conquerors acknowledged his aid by mentioning his name at the end of their report. Through these acknowledgments we learn to know this interesting man.

On the 20th of February, 1581, the Conqueror Pedro de Santillana, pensioned by the King with the lands of Quinacama or Moxopipe, sought the aid of Gaspar Antonio and at the end of his report gives the following description of him³:

. . . the person who with me made this report, he is a native of this province and called Gaspar Antonio Chique, and usually called Gaspar Antonio among the Spaniards. His age is 50 years, a little more or less, and he is a man of many abilities, a scholar, (ladino⁴) well versed in the Castillian language, the Mexican and Mayathan, which is his mother tongue. And he is a person who knows well all the peculiar things, and more than has been put down here, because said man was born in this country and was taken as companion of the bishops here, which were Fray Francisco Toral, glory be to his memory, and Fray Diego de Landa, glory be to his memory, as they thought him a truthful man; and through him they learned about the peculiarities and customs which the natives used to have, and still have at present. And as a man of character the said bishops relied upon the things which were investigated and understood, in the language of this country, by the said Gaspar Antonio.

Because that which is described in this report has truly happened and is happening, he signs together with myself Pedro de Santillana. Gaspar Antonio.

³ Relaciones de Yucatan, I. 251.

⁴ *Ladino*; dictionary gives sagacious, cunning, crafty, and I think he was all of this.

Through this statement we get some information which is still more interesting when we read what Cogolludo⁵ has to tell us:

. . . . In a royal decree dated September 6th, of the year 1599, in Monreal, in which is referred to another from the year 1593, there is spoken of this event (mentioned in the following), whereby the King gives 200 pesos as help towards expenses to Gaspar Antonio Chi—Indian—for this happening, as well as for being general interpreter of the government, as he was grandson of Tutul Xiu, and son of Ah Kin Chi, whose eyes were taken out with the arrow . . . etc, etc. . . .

These statements bring us right into the heart of the early history of the conquest of Yucatan and we see that the apparently insignificant interpreter is a man, who not only is in close family connection with the Xiu dynasty of Mani, but also knew Landa, the first historian of Yucatan.

His acquaintance with Landa is further confirmed through the statement of Sanchez de Aguilar⁶ who says:

I knew an Indian, and all the people of this time knew him, who was raised from infancy by the Bishop Diego de Landa, and who knew grammar moderately well, and he placed the grammar book in my hands when I was a child, being master of the chapel in the town of Tecemin, on the land-grant of the Royal ensign Alonso Sanchez de Aguilar, my oldest brother. He was as learned as any Spaniard, sang plain song (*canto llano*), and sang to organ with great skill and could play the organ. I knew him as organist in this holy church, and later as General Interpreter of the Governor. He defended the Indians in their disputes, presented their petitions and wrote them, his name was Gaspar Antonio de Herrera, he was the son of a pagan priest whose name was Kinchi; he was a very loyal subject of your Majesty, and among the first to give obedience, and to be baptized. According to what I heard, he was a native of the town of Mani. . . .

In order fully to appreciate Gaspar Antonio's importance, we must review a part of this early history.

Bishop Landa⁷ tells us that after the Spaniards had failed in their first attempt to conquer Yucatan, in 1535 there happened a year of severe drought. The Indians of the district of Tutul Xiu had used up their supply of corn during the war against the Spaniards, and were near starvation and forced to eat the bark of certain trees.

⁵ Cogolludo, 1: 216. 3rd. ed.

⁶ Sanchez de Aguilar, 96-97, 1892.

⁷ Landa, 77, 1881.



The Xiu ambassadors of the first mission.

For this reason the lord of the district, Tutul Xiu, decided to make a pilgrimage to the sacred wells at Chichen Itza, in order to make offerings of slaves, both men and women. To reach the sacred well he had to pass through the territory of his enemies, the Cocom. Thinking that they would lay aside their ill-feeling towards his people in such time of dire need, Tutul Xiu went to ask permission to pass through the Cocom lands.

This was in the year 1536. The Cocom received the Xiu mission in the most friendly way and after three days of entetarin-ing and feasting, set fire to the large house wherein the guests were, killing nearly all the members of the embassy.

Cogolludo describes, and confuses, a similar event as having happened after the second entry of the Spaniards, or between 1542 and 1545. As a matter of fact, the Cocom massacred two different embassies from the Xiu. The first one is described above. The second consisted of three men, Ikeb, Caixicum and Chuc⁸ sent at the request of the Adelantado Don Francisco Montejo, in an attempt to persuade the Cocom to become friends of the Spaniards; the three ambassadors were blinded by the Cocom and returned to Mani.⁹

In Cogolludo's book we find a drawing¹⁰ (pl. 1) dating from 1536, representing the Xiu ambassadors of the first mission, and here we see Ah Napot Xiu with closed eyes, represented as dead, and also Ah Kin Chi, who is shown with an arrow through his head.

Morley states¹¹ that these thirteen heads represent a Katun wheel, and it does not seem unlikely that they were given the names of the persons who took part and lost their lives in one of the most outstanding catastrophes that had happened within its history of the Xiu dynasty.

Gaspar Antonio was the son of Ah Kin Chi and grandson of Ah Napot Xiu. As we have already learned, he received a grant

⁸ Chronicle of Chacxulubchen, 237-38, 1882. Brinton.

⁹ Brinton, 237-38, 1882. Morley, 478, 1920.

¹⁰ Cogolludo 216, 1867.

¹¹ Morley, 482-484, 1920.

of 200 pesos because of this happening, as well as for being general interpreter.

In the Chronicle of Oxcutzcab. we find under the year 1537¹² that Ahtzun Tutul Xiu, "the leader," and Ah Çiyah Napuc Chi, "the governor-priest," died at Otmal, with several others. It appears that both the chief, "Halach Uinic," of Mani, who headed the expedition, and his son, were killed.¹³ Therefore it must be another Xiu, who was ruling the district of Tutul Xiu at the time of the second entry of the Spaniards in 1541.

A Tutul Xiu destroyed Mayapan in approximately 1450 A.D., a Tutul Xiu was killed at Ozmal in 1536, and another Tutul Xiu received the Spaniards in 1541. From this it is apparent that "Tutul Xiu" was both the name of a province, and the title of its chief.

Another document which must be considered is the Xiu family tree, on pages 8 and 9 of the Chronicle of Oxkutzcab.¹⁴ (Pl. 2.) This document shows the Xiu family from the Tutul Xiu, who destroyed Mayapan, to some time after the Spanish conquest, and we here too find Gaspar Antonio's name.

The family tree contains many points of interest. It should not be out of place to discuss it in some detail. In order to make the understanding of the document simple it is tabulated on page 258 and the persons to be spoken of are numbered.

We begin with the Tutul Xiu who destroyed Mayapan, and who is regarded as the ancestor of the family.

1. . . . ctzil chac ome . . . th tutul Xiu.
2. Ah Op Xiu; "ah" is the masculine prefix; "op," Anona, parrot or Guacamaya, (macaw) most likely this latter. The macaw was worshipped at Izamal in connection with Kinich Kak Mo.
3. Ah çun Xiu; "çun" or "tz'un" is translated "the leader." (See 5,) literally Ah çun is "he who begins something."
4. Ah Uitz Xiu; this name is found five times on the tree; "uitz" means mountain.
5. nappol chuvat xiu. "chuvat" sounds like a corruption of the Nahua word "cuat." This is undoubtedly the Tutul Xiu who was the leader, "ah

¹² Morley proves this to be 1536. Morley, 478 ff, 1920.

¹³ Cogolludo, I 428.

¹⁴ Manuscript in the Peabody Museum of Harvard University.



The Xiu family tree.

(By courtesy of the Peabody Museum, Harvard University.)

Jun Tutul Xiu" and as chief in 1536 was killed at Ozmal, together with his son Ah Kin Chi (8).

6. Ah Kauil Xiu; Kauil; "kauilyah," to seek alms.

7. Ah Cuat Xiu.

8. Ah Çiyah Xiu, yacman; "çiyah" is translated "governor priest" by Cogolludo.¹⁵ Now it is stated that Gaspar Antonio (27) was a grandson of the Tutul Xiu, who was killed at Ozmal, and a son of Ah Kin Chi, who met the same fate at the same place. Furthermore, the family tree says that he was son of one Ixkukil Xiu (19). If these statements are correct, then Ah Çiyah Xiu is identical with Ah Kin Chi, who married Ix Kukil Xiu, contrary to the Maya custom that persons of the same family name might not marry.

In the next generation we see that Montejo Xiu (12) marries one Doña Maria Xiu, Calotmul (18).

If Gaspar Antonio was a direct son of Ah Çiyah Xiu, we should find his name among the sons of said gentleman. As we do not find it there, we may imply, either, that Ix Kukil Xiu was the second wife of Ah Çiyah or his concubine. That promiscuity could occur even in the Xiu family we shall see later (26a).

Probably Ix Kukil Xiu retained her heathen name, because the "Fathers" objected to her "unchristian" morals.

9. Ah Kukil Xiu, this name occurs twice, (9 and 25,) and we will return to it under 12.

10. Ah a tira Xiu, (Ah a tiua? Xiu)

11. Melchor Xiu. We now reach the christianized members of the Xiu family.

12. Montejo Xiu, Governador de Mani. We hear that a Tutul Xiu received the Spaniards on their second entry, and in 1548 Lizana¹⁶ tells us that the ruler of Mani was called AhKuKumxiu, or KuKulxiu, and after he was baptized he was given the name Don Francisco. Cogolludo states¹⁷ that the ruler of Mani was called Don Francisco, in respect for the Adelantado (Don Francisco Montejo). In the Mani manuscript of 1557, we see that the ruler of Mani was Don Francisco Montejo Xiu. It therefore seems that the heathen name of Montejo Xiu (12) was Ah Kukum Xiu. Roys¹⁸ suggests that Kukum is an error for Kukil, this latter name being found several times in the family tree (9, 10 and 25). Perez translates "Kukum" as "feather," and as the feathered serpent (Kukul-Can) was well established in the Maya mythology at the time of the Conquest. I do not see any reason why the chief of the Tutul Xiu should not be called Kukum, "the plumed Xiu."

If we accept that Nap pol Chuvat Xiu (5) is the same person as Ah Jun Xiu, the Apulha or water bringer of the Chronicles, and that his son Ah Çiyah Xiu is identical with Ah Kin Chi, then we see that Montejo Xiu is a direct descendant of the ruling line of the Xiu family.

¹⁵ Cogolludo, 216, 1867.

¹⁶ Lizana, 55 recto., 1893.

¹⁷ Cogolludo, 431, 1867.

¹⁸ Roys letter 26-II-27.

The family tree shows us that Montejo Xiu married one Doña Marai Xiu, from Calotmul, contrary to the rules of Maya customs. Landa tells us that this was considered "infamous" among them.

13. Don Diego Xiu de Tikit. He was governor of the town of Tekit, and it appears that he was succeeded by a distant relative, Don Alonso Xiu (26). A Diego Xiu is mentioned as ruler of Tekit in 1581. See further under (26).

14. Don Juan Xiu. This is the father of Doña Maria, wife of Montejo Xiu.

15. Ah Oulub Xiu. Great-grandfather of Francisco Pacab of Oxxutzab. This latter is mentioned in the Mani manuscript of 1557. All his 4 children are given with their heathen names.

16. Ah Mochan Xiu, "Mochan," handless, one-handed. A man of this name is mentioned in connection with the prophecies of the coming of Christianity, as ruler of Mani, a few years before the Spaniards arrived.¹⁹

When the nobles gathered in Mani in 1537²⁰ in order to decide how to receive the Spaniards if they should come back after their first attempt to conquer Yucatan, and because their chief "halach uinik" had died, we see the name of another Mochan Xiu. This can hardly be the same person, as he is distinctly said to be ruler on the first occasion, and it is just as distinctly stated that the ruler is dead in the second instance.

Roys²¹ points out that none of the sons of the Mochan Xiu in the family tree were christened as they would otherwise undoubtedly have been given with their Christian names.

17. Nabatun Xiu. Here we find him with one son, Don Alonso Xiu of Tekit. He may have had another son, as in the Tabi manuscript we hear of a Jorge Xiu, whose father was called Nabatun Xiu. This Jorge Xiu will be mentioned under 26a.

18. Doña Maria Xiu, has already been discussed several times.

19. Ix Kukil Xiu. "Ix" is the feminine prefix. We have discussed her under (8) and her most outstanding accomplishment is that she is the mother of Gaspar Antonio.

20. Ix Kaual Xiu; "kaual" can be translated "a very serious person," or one who is very particular in dress. She may be the grandmother of Francisco Pacab of Oxxutzab.

21. Ah Pitz Xiu. "Pitz" means "to play ball" (*jugar a la pelota*, Perez).

22. Ah Cun Xiu, see 3 and 4. A son and a grandson of this man are shown in the family tree.

23. Nacahun Xiu.

24. Ah Çiyah Xiu. See 8. This person was probably too young to be the "governor priest" who was killed at Oxtmal.

25. Ah Kukil Xiu. See 9 and 12.

26. Don Alonso Xiu, Tikit. He is mentioned in the document of 1556, published by Stephens (1843, 2: 264) and again in the Mani Manuscript of 1557, as governor of San Andres Tikit. In an addition to the Mani Manu-

¹⁹ Relaciones de Yucatan, 1. 45.

²⁰ Chilán Balam de Chumayel, 85.

²¹ Roys notes. Ms.

script of 1588 appears an Alonso Xiu from Ppuztunich (Mani Ms. p. 2 recto, lower part.)

26a. Jorge Xiu. In the Tabi Manuscript appears a Don Jorge Xiu, Governor of Jan, as son of Nabatun Xiu. He may be a brother of Don Alonso. In this manuscript an Indian, Diego Pox, bitterly complains against Don Jorge, who tries to prevent Pox from his due inheritance after his father. Don Jorge is also accused of making several attempts upon the chastity of Diego's wife.

27. GASPAR ANTONIO.

The family tree of the Xiu dynasty is of high interest. It was probably made some time after the arrival of the Spaniards, in order to prove the ancient lineage of the Xiu's, because of the fact that Indians of noble family were exempt from taxation. For this reason the record cannot be considered strictly accurate.

We have reviewed the greater part of the source material on our friend, Gaspar Antonio, and may now begin to make ourselves a picture of his life.

If Gaspar Antonio was about 50 years old in 1581, he must have been a mere child of 5 years of age, when his grandfather and father were killed at Otmal.

It is likely that upon the second arrival of the Spaniards, Gaspar was in the crowd, that with "the Tutul Xiu," received the Adelantado and his men. At this time, the Tutul Xiu was fully aware of the power of the Spaniards, and upon the suggestion of the Adelantado, he sent an embassy to the Cocom chief to persuade him to submit. One reason for his joining the Spaniards undoubtedly was a wish for revenge on the Cocom.

In 1548 the Fathers Villalpando and Benavente reached Mani and began to preach Christianity. The Indians built a church for them out of poles and palm leaves. The Fathers urged the people of Mani to send their sons to the convent schools, and it is to be supposed that Gaspar Antonio—at this time (1548) about 17 years of age—received his first instruction in the Spanish language and the art of writing from Villalpando and Benavente, if not from Diego de Landa, who arrived in Yucatan in 1549, and may have been assigned to the convent at Mani.

As a direct descendant of the Tutul Xiu, Gaspar Antonio may have been acquainted with the Maya hieroglyphic writing,

ah op xiu (2)	napopol chuvat xiu (5)	ah qiyah xiu yacman (8)	melchor xiu (11)	dō francisco xiu yjo de dō melchor	alonso xiu? xiu, yjo de don francisco.	dō xiu don Jū xiu, yjo de dō alonso xiu.
			mōtejo xiu, go ^r mani. marido de dā m ^e xiu. (12) ah tzam xiu ah op xiu			
	ah cetz xiu	ah kukil xiu, . . (9)	don diego xiu tikit (13)			
	ah uitz xiu	ah tzam xiu	Don Ju ^e xiu (14)	Don Maria xiu (18) Calotmul, muger de Montexo xiu.		
<i>Oxkutzacab</i> chil chac ome (etzul) ..ch tutul xiu (th) (1)	ah xun xiu (3)		ah xulub xiu (15) vtsauco de dō frac ^o pacab oxcutzacab ah uitz xiu (6)	ix kuki xiu, m ^e de gasp ^r antonio (19) ix kauul xiu (20) ah xiu. ah pitz xiu (21) ah ū xiu (22)	GASP-AR ANTONIO (27) n . . . xiu
	ah kauil xiu (6)	ah lol xiu				
	ah uitz xiu (4)	ah cuat xiu ah a ti ra? xiu. (7)	ah mochan xiu (16)	nacabun xiu (23) ah qiyah xiu (24) ah kukil xiu (25) ah cuate xiu		
			habatun xiu (17)	Don alonso xiu (26) tikit		
	ah uitz xiu	ah uitz xiu (†)	ah chac xiu (*) panabo	na chan xiu (**)	Don xiu	

† After this name the word "panabo" has been stricken out and is found under the following name. *

* A correction has here been made from what apparently was the name of the following man **, i. e., "bauah² chan xiu" to "ah chae xiu."

** This name is indistinct and the paper torn, but may be read nahu' chan xiu.

even though he was only about 17 years old when he entered the school of Father Villalpando.

One day not long after the Fathers had settled at Mani a child came and told them that the Indians had decided to kill them. This boy said that during the night the Fathers would be attacked and brought to death. The holy men then calmly went to their small palm-thatched church and spent the night in prayer and devotion, while the Indians yelled and threatened outside.

Towards morning, sounds of hoofs were heard. Rumor ran in Merida that the Indians of Petu had risen and a troop was despatched to the support of the Spaniards. The arrival of the troupe at Mani scattered the Indians. Later it was found that there was no disturbance at all in Petu. The Spaniards were quick to speak of the miraculous saving of the Fathers.

When the Indians had taken cover in the forests, the boy again appeared, expressing his joy at seeing the Fathers alive, and, Cogolludo tells us that they took care of him and brought him up in the Catholic faith.

The Fathers speak of this boy as "a child," and though Gaspar Antonio was about 17 years old when this happened and no document gives his name, I cannot but imagine that he was the youth who saved them. It seems reasonable that they should have had a special interest and confidence in this boy, and that later he should have grown into a position of trust with them.

Shortly after this event, Ah Kukum Xiu was christened and given the name Don Francisco Montejo Xiu, after the Adelantado.

Not until 1556 do we hear definitely of Gaspar Antonio when he arrives in Mani (about 26 years old) from Uxmal, as interpreter to the Judge Felipe Magrique. At this time, Don Frco. Montejo Xiu had called his chiefs together in Mani to fix the boundary marks on the lands of their towns, and Gaspar Antonio was present to interpret for the judge and Indian chieftains.²²

Bishop Toral must have made use of Gaspar Antonio immediately after his arrival in 1562, but as Landa had been in Yucatan

²² Ms. of Mani, p. 1. versus. Stephens, 2: 265, 1843.

since 1549 there is little doubt but that he, too, many times employed Gaspar Antonio both as interpreter and informant.

Landa very plainly tells us that he got much information for his book²³ from Don Juan Cocom, who

was a man of great reputation and very wise in many things, and in the things pertaining to the Indians, and he was a great friend of the author, Fray Diego de Landa, and told him many things of antiquity.

As we have seen, the Cocom were enemies of the Xiu, and nowhere does Landa tell us that he knew Gaspar Antonio, but as two of our sources mention them together it is likely that our friend furnished some of the information which Landa used in his "Relacion of the Things of Yucatan."

Bishop Landa died on the 29th of April, 1579, the same year in which Gaspar Antonio answered some of the questionnaires in Merida, and expressed some of his own opinions on the Spanish rule, though he was a good friend of the Spaniards.

Let us, for example, read a part of his answer to question 14:

They [the pre-Columbian inhabitants of Yucatan] baptized with certain ceremonies and buried with other ceremonies. They were fond of a wine which they made out of bee's honey and the bark of a tree—just as they are all today fond of drinking the liquor of Spain, which they say burns their livers—and they say that the old drink was more healthy as it acted as a purge and at that time they were much fatter. With the natives, all good customs are being lost as time passes.²⁴

At the end of his answer to question 30, he says as follows:

In olden times all lands were communal and there were no property marks, except between provinces. for which reason hunger was rare as they planted in different places, so that if the weather was bad in one place, it was good in another. Since the Spaniards have arrived in this country, this good custom is being lost, as well as the other good customs which the natives had, because in this land there are more vices to-day (1581) than fifty years ago.²⁵

Though Christianized and a friend of the Spaniards, Gaspar Antonio does not fail to see clearly that the laws which are good for the Spaniards are destroying his own race, and his complaints

²³ Landa, 76, 1881.

²⁴ Compiled from several answers by Gaspar Antonio.

²⁵ Compiled from several answers by Gaspar Antonio.

sound as a cry to the King for help and better understanding of the needs of his people.

In Geronimo Castillo's book, *Efemerides Hispano-Mexicanas o calendario historica Yucateca* is an entry²⁶ for the year 1582, March 20, is published a "Relacion sobre las costumbres de los Indios de Yucatan" or "Description of the customs of the Indians of Yucatan" by Gaspar Antonio,

grandson of Tutul Xiu, and descendant from the kings or rulers of Yucatan, whom the Spaniards taught to read and write, as well as the Latin language which he learned to perfection.

This book, as well as the Grammar of the Maya language which Gaspar Antonio is said to have written, have both been lost, and the earnest student of Maya literature, Don Juan Martinez Hernandez of Merida, is of the opinion that our friend did not write any books, but merely acted as interpreter.²⁷

From the various statements it appears that Gaspar Antonio was not only an accomplished linguist, speaking Spanish, Mexican (i.e., Aztec), and Latin, besides his native tongue, but also a singer and musician.

His signature is said to be under two of the documents in the Sotuta manuscripts, copied from earlier originals in the year 1600.

According to Cogolludo's statement,²⁸ Gaspar Antonio died before 1599, perhaps before 1593, as the 200 pesos which were granted him by the King were given to his granddaughter, "as he had died when this grant was to be given."

Information about Gaspar Antonio Chi is sparse, but between the lines may be read that he was a man of considerable importance during the early days of the Spanish rule in Yucatan. No doubt there were many conferences where important questions were settled through him, and many were the times when conquerors, governors and fathers called on him for advice. He was trusted by the Spaniards, and because of his noble birth, a direct descendant from the Tutul Xiu, rulers of Mani, the Indians respected and obeyed Gaspar Antonio Chi, "a man of many abilities."

²⁶ Carillo y Ancona, 138, 1872.

²⁷ Tozzer, 205, note 3, 1921.

²⁸ Cogolludo, 1: 216, 1867.

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TULANE UNIVERSITY,
NEW ORLEANS, LOUISIANA

A NOTE ON RELATIONSHIP TERMINOLOGIES

By ROBERT H. LOWIE

IN HIS *Systems of Consanguinity and Affinity* (p. 12) Lewis H. Morgan divides relationship systems into two types:

One of these is descriptive and the other classificatory. The first , rejecting the classification of kindred . . . describes collateral consanguinei. for the most part, by an augmentation or combination of the primary terms of relationship. . . . But the second , rejecting descriptive phrases in every instance, and reducing consanguinei to great classes by a series of apparently arbitrary generalizations, applies the same terms to all the members of the same class.

As representative of the former type, Morgan cites the Aryan, Semitic and Uralian systems, while the American Indian (and primitive nomenclatures as a whole) illustrate the second type.

Kroeber and Rivers have criticised the basis for the distinction inasmuch as our English and other Indo-European terminologies have such classificatory terms as "uncle" and "cousin." Morgan mentions these as constituting "a limited number of generalizations" but feels that their use

does not invade the principles of the descriptive system and that their origin lies in the constantly recurring desire to avoid the inconvenience of descriptive phrases (pp. 12, 48).

This explanation evidently does not satisfy the demands of logical classification.

Rivers also objects to the term "descriptive" as applied to the ordinary Indo-European nomenclature. When the Norwegian combines the stem for "father" or "mother" with that for "brother" to form the words *farbror* and *morbror* for the paternal and maternal uncle, he is evidently "describing" the relationship in Morgan's sense of the word. But where English does not employ classificatory terms, as in the case of "uncle," it evidently falls back for the most part upon such primary stems as those for father or mother, which cannot by any criterion be called "descriptive," but are simply, as Rivers contends, "denotative." Morgan's

term, then, should be restricted to systems that actually exhibit a strong tendency to define relations by descriptive compounds.

So far as I am aware, no one has called attention to a basic logical error in Morgan's dichotomy, quite regardless of the relevant facts. "Classificatory" and "descriptive" are not complementary concepts, but belong to different logical universes: the former envisages the singularity or plurality of the kinsfolk designated; the latter considers the technique by which kinsfolk are defined. It is conceivable that a tribe should designate the paternal uncle by a descriptive phrase and apply that term to the whole class of father's clansmen within, say, the latter's generation. What is more, this might even hold for so common a concept as that of a sibling. The Ewe call a brother "mother's-child-male." What is to prevent them from applying this compound as widely as the more usual primary stem for brother? The logical complement of "classificatory" is evidently not "descriptive" but "individualizing"; the logical complement of "descriptive" is Rivers' "denotative" if the word is understood to refer to designation by primary stems. That this is not a matter of mere logic-chopping, appears from the Lango relationships, which

though based on the classificatory system, include a number of descriptive terms some of which, nevertheless, are used in a classificatory way.¹

In this connection it seems worth while to point out another confusion of thought. It is often stated that classificatory systems are characterized by the discrimination of elder and younger sibling. Obviously, it is the more generic terms "brother" and "sister" that come closer to the "classificatory" standards. It so happens that the discrimination frequently occurs in non-classificatory terminologies. There is thus neither logical nor empirical warrant for the correlation asserted. After the distinction has once been established, the terms can of course be extended in a classificatory sense. But the distinction as such is in conflict rather than in harmony with classificatory ideals.

Among the most lamentable phenomena in the recent literature of the subject is the tendency of British writers to speak of "Clan"

¹ J. H. Driberg, *The Lango; a Nilotic Tribe of Uganda*, 180, 1923.

and "Family" nomenclatures. I myself believe in a fairly high correlation of clan systems with a classificatory terminology of the Iroquois-Dakota type. However, correlation does not imply a hundred-percent correlation nor a cause-and-effect nexus; it means, on the face of it, a functional relationship in the mathematician's sense. The terms here criticised are inexcusable because they prejudice a theoretical problem by injecting the *inferred* cause into the description of observed phenomena. The result is inevitably baneful. As a matter of fact, there are clanless tribes with a "Clan" terminology; and to describe them as having "Clan" systems would not be conducive to clarity.

As Kroeber long ago indicated,² kinship terminologies are not so many coherent "systems" but are each founded on a variety of disparate principles, all of which must be enumerated for a complete definition. Where the mother's sister is called "mother" and the sister's son (woman speaking) is a "son," these two features are parts of one system. But if they are linked with the use of separate words for "mother" by men and women, *that* is no longer part of the same organic whole. It is even virtually demonstrable that particular terminologies have become less systematic. Thus, a term for paternal aunt implies as its logical correlate a separate term for brother's son (w. sp.), but in some tribes that term does not exist, having been lost, as we may infer from a comparison of cognate languages. That is to say, there has been a secondary departure from the systematic character of part of the nomenclature. The whole becomes proportionately harder to define in brief compass.

If the terminologies of the world were both extensively and intensively better known, it would be necessary to attempt a wholesale classification on the basis of as many categories as possible. At present this is hardly feasible, and a provisional survey of the ground is best essayed with as simple a scheme as can be applied, to wit, by taking a single significant criterion. The historical development of the subject, from Morgan down, suggests the treatment of collateral relatives of the first ascending

² A. L. Kroeber, *Classificatory Systems of Relationship*. Journ. Royal Anthropol. Inst., 39: 77-84, 1909.

generation as the most suitable basis. The logical possibilities are the following:

- (1) Uncles and aunts may be treated as parents.
- (2) The paternal uncle may be classed with the father, while the maternal uncle is designated by a specific term; and, correspondingly, the maternal aunt may be classed with the mother, while the paternal aunt has a specific designation.
- (3) The paternal and maternal uncles (or aunts) are alike distinguished from the parent *and from each other*.
- (4) The paternal and maternal uncles (or aunts) are alike distinguished from the parent, but bear a joint uncle (or aunt) designation.

The merging of uncles and aunts with parents constitutes a Generation terminology. If the males (or females) of the first ascending Generation are dichotomized on the principles explained, the terminology may be called Bifurcate Merging: bifurcate, because paternal and maternal kin are distinguished, merging insofar as there is a *partial* merging with the parents. Where this merging fails to obtain, so that each collateral relative is distinguished, the nomenclature becomes Bifurcate Collateral. If, finally, the collaterals are confounded with each other but remain separate from the direct line of descent, such emphasis on the latter merits the term Lineal.

Evidently, the Generation type corresponds to Morgan's misnamed "Malayan" or Rivers' Hawaiian system; the Bifurcate Merging, to the more common "classificatory" form variously called "Turanian-Ganowanian," "Clan," "Dakota-Iroquois;" the Lineal to the common Indo-European (Morgan's Descriptive, Rivers' Family) system. The Bifurcate Collateral, a second "Family" system, has been generally ignored by theorists, though its presence in North America has been repeatedly noted.

The designations here employed are awkward but serve to bring out connections usually disregarded. Specifically, Morgan and Rivers stressed the genetic relationship of Generation and Bifurcate Merging terminologies: Morgan traced the development of the latter from the former; while Rivers reversed the process. The recognition of Bifurcate Collateral terminologies opens a new prospect,—the derivation of the Bifurcate Merging from the Bifurcate Collateral type. Logically, the affiliation is not one

iota smaller than between the two systems compared by Morgan and Rivers. Empirically, and bringing in sociological correlations, marriage is even in clanless societies often a contract between two families, whose separateness is emphasized and may thus find expression in language. When, for some reason—say, the joint prevalence of the levirate and the sororate—partial merging develops, the Bifurcate Merging type would come into being.

UNIVERSITY OF CALIFORNIA,
BERKELEY, CALIFORNIA

A PREHISTORIC VILLAGE SITE IN GREENUP COUNTY, KENTUCKY

By WM. S. WEBB

EARLY in August, 1926, a member of the staff of the State Geological Survey called the author's attention to the recent discovery of skeletons, presumptively Indian, during the excavations then in progress in the building of a street in a new subdivision at Fullerton, Greenup county, Kentucky. Immediately plans were made to visit the site for the purpose of study, and to attempt by photography and field notes to preserve as far as possible a record of the findings. Mr. Victor Dodge, of Lexington, Kentucky, and the author reached Fullerton on August 16, only to find that the work of excavation, which had been going on for some ten days, had been temporarily discontinued because of heavy rainfall. This fortunate circumstance gave ample time for a preliminary study of the geography of the site and its topography before further excavations were made.

Opposite Portsmouth, Ohio, on the Kentucky side of the Ohio river, is the small village of South Portsmouth. Immediately adjacent thereto on the east is the village of Fullerton, which is in part built on the now exposed portion of the ancient river bed of the Ohio river. The town sites of South Portsmouth and Fullerton form a continuous strip of populated territory, extending perhaps three miles along the river. This strip varies in width from 400 to 1000 feet, and terminates to the southward abruptly in the almost vertical cliffs which rise 300 feet or more from the level of the river. East of Fullerton the ancient river bed widens out to about 5000 feet from the present river bed to the river cliffs to the southward. (See fig. 1.) This level tract is bounded on the east by Tygart creek, a fairly large creek flowing swiftly between steep banks, 50 feet or more high, to empty a yellow stream of generally very muddy water into the Ohio river, not far from the Ohio village of South Boston. The main road from the ferries at Portsmouth, Ohio, on the Kentucky side, runs along

the foot of the river cliff eastward to Greenup, crossing Tygart creek over an iron bridge. On the north side of this road, and along the west bank of Tygart creek, Mr. A. T. Pack, of South Portsmouth, Kentucky, had purchased a tract of some five acres, and had undertaken to develop the subdivision called Fullerton Heights. (See fig. 2.) Indianola avenue was being constructed from the present Fullerton-Greenup road at the foot of the river cliff northward to meet the proposed new state road over Tygart

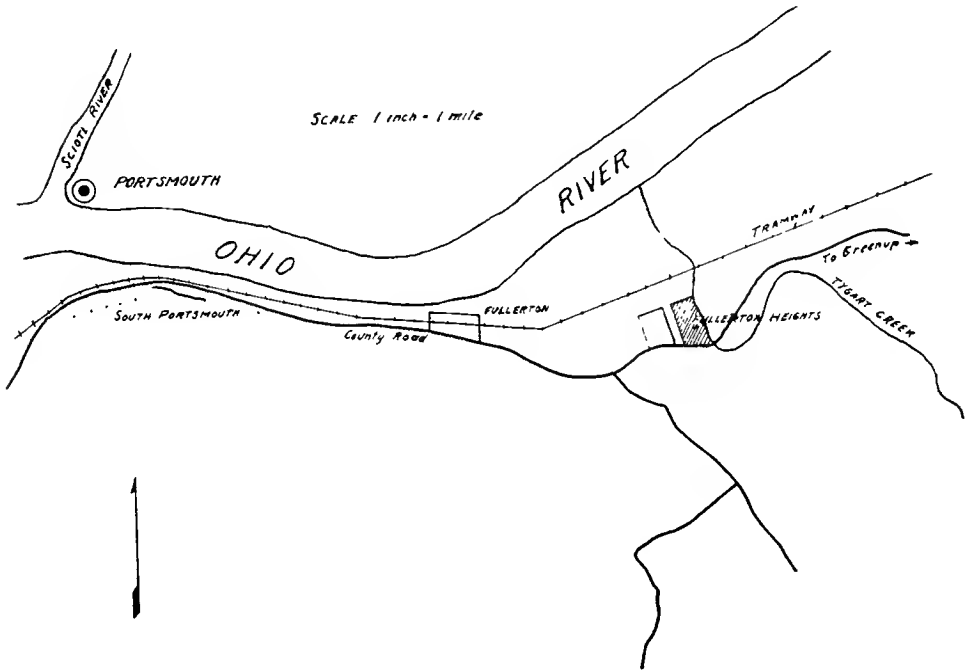


Fig. 1.

creek, a distance of some 1100 feet. In building this street it was necessary to excavate a strip some 50 feet wide to a depth varying from 2 to 6 feet. Before excavation for this street began it was not known that this was a prehistoric village site. However, a resident of an adjoining property stated that several years before when excavating for a cellar for his home, he had discovered two skeletons very old and apparently folded up. This area on which the new townsite was laid out had for several years previously

been cultivated as a cornfield, the top soil being a black, sandy loam, doubtless very fertile. Upon inquiry, the former owner stated that workmen had repeatedly plowed up bones in this field, some of which had been thought to be human, but little or no attention had been paid to such chance findings. There seemed to be no history of the finding of any especially interesting or unusual artifacts.

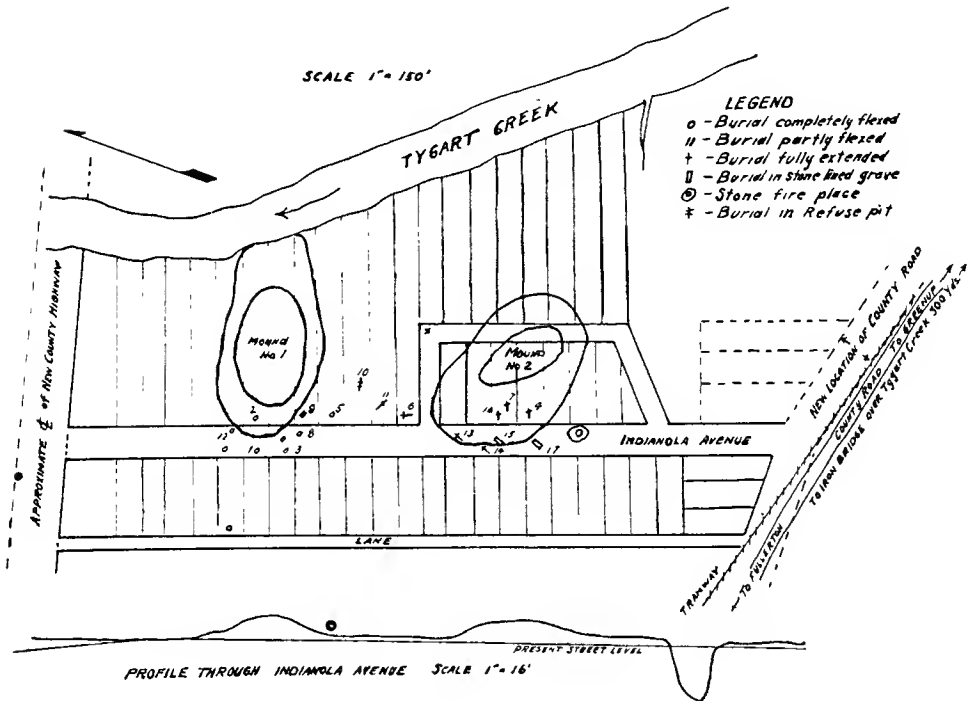


Fig. 2. Fullerton Heights.

It was quite apparent, however, from a superficial inspection of the surface of this field, that there was every reason to believe that here was an ancient village site. The black loam was full of flint chips, broken pottery, mussel shells, and one had but to remove some six to nine inches of the top soil to discover a variety of animal bones of deer, bear, wolf, together with bones of fish and birds. It was further apparent that on this site there had been at least two mounds, somewhat elliptical in form, and prob-

ably 100 feet in diameter, situated as shown in figure 2. It was difficult, if not impossible, to estimate the original height of these mounds, as the original surface of this "old river flat," as this area was called by the local inhabitants, was evidently slightly rolling in topography, and the makers of each of these two mounds seemed to have taken advantage in each case of a natural ridge, which were perhaps 2 to 4 feet higher than the surrounding territory on which to build these mounds. Again, the continued cultivation had evidently greatly reduced the height of the mounds and spread them over a larger area than they originally occupied. When first visited, the top of mound no. 1 was about 6 feet, and that of no. 2 about 4 feet, higher than the general level of the soil of the cultivated field.

Before the author reached this site, excavation had been going on along Indianola avenue, and a strip some 30 feet wide along the western side of this street had been brought down to grade for a distance of about 300 feet on the northern end of this street. The excavation was carried on by some fourteen teams with drag scrapers, scooping up the soil and carrying it to the vicinity of the Fullerton road, there to dump it into several gullies which were being filled. It was quite evident that by this method the chance of finding a burial undisturbed was small. However, the task was not an impossible one. The first 12 to 18 inches of soil was coal black in color. This layer of top soil rested on a very beautifully clear yellow river sand, which in the undisturbed state was uniform in composition and free even of river gravel. Where this original yellow sand had been disturbed by ancient man, there were traces of the mingling of the black top soil which showed quite plainly. As the scrapers passed over the sand floor, when they showed black soil mixed with sand such signs always led to the finding of graves or other evidence of prehistoric occupation. Through the kindness of the owner, Mr. A. T. Pack, the workmen were instructed that if any signs were discovered which required time to investigate, the procession of scrapers was to be diverted to another tract, thus giving opportunity for a careful inspection. But for this courtesy and the general assistance of the workmen it would have been impossible

by such rapid movement of earth to obtain any worthwhile data. When the excavation was begun, it chanced that Mr. Lucian Beckner, of the Kentucky State Geological Survey, was in the neighborhood, and upon his learning of the discovery of Indian remains, he was immediately able to visit the site and to recover a number of skeletons, some of which he carefully preserved and shipped to the Survey Headquarters at Frankfort, Kentucky. These burials were located in the general vicinity of mound no. 1, in the northern end of Indianola avenue, and were all of the fully flexed type. He reports no artifacts buried with these bodies, and only a few simple artifacts found scattered through the soil, such as broken pottery and arrowpoints, and one drilled bear's tooth. No data are available as to the exact location of these burials.

Excavations were continued for a period of some six weeks, the work being frequently interrupted by repeated rains, and during most of this period the soil was so full of water as to greatly hinder careful investigations by individual excavations. During some three weeks on this field it was possible to investigate carefully some seventeen burials as well as to inspect superficially or collect data on some sixteen other burials which had previously been explored by others, or destroyed in the process of excavation.

In general the burials may be, for the purpose of description only, divided into four classes: the type most commonly found is well represented by burial no. 5 (pl. 3a), for convenience called the "completely flexed type." Nine of these were investigated by the author, several more were found by Mr. Beckner, and three others reported by workmen as having been scooped up and carried over the dump. All these burials were single interments, in no case was there found a suggestion of a double burial. These completely flexed burials seemed to have no regularity as to orientation, being sometimes on the right side, sometimes on the left, and often on the back, and with heads toward all points of the compass. Always the knees were drawn well up to the body, with arms usually folded so that the hands came up about the face. These burials were always on or in the naturally yellow sand, at depths varying from 18 inches to $4\frac{1}{2}$ feet. No trace could



a

The "completely flexed type" of burial.



b

The "partly flexed type" of burial.

be found of any attempt to prepare a grave or do any more than dig a hole in the sand. The skeletons of this type were fairly well preserved. These graves were completely destitute of artifacts, not even a bead or a bit of broken pottery being found. When it became apparent that relics were very scarce with this type of burial, extra care was used to be sure that nothing from these graves was overlooked. As day after day went by with only skeletons revealed, the ever present "village wag," who viewed the work from a comfortable seat on the bank, and whose curiosity was still unsatisfied, gave vent to his disappointment by stating that "he allowed these here Indians were Democrat and never had nothing." At any rate nine such burials, the location of which is shown in figure 2, yielded nothing which could be identified as placed with them at the time of interment. It is to be noted that all of these burials were found near the northern end of Indianola avenue, and appear from a superficial study to be quite similar to burials described by Mills¹ as coming from Feurt Village Site. In most cases it was possible to remove the skeletons completely, and with careful packing they arrived at the Department of Zoology, at the University of Kentucky, in fair condition.

A second type of burial is represented by a single skeleton, burial no. 9 (see pl. 3*b*). This body was laid head to the west, slightly on the left side on or in a bed of hard clay, foreign to the natural river sand. The clay for this bed had evidently been brought from elsewhere, and placed on the sand and formed into a hollow bowl-like form. The body was partly flexed, and had accompanying it a large piece of broken pottery and two bone awls, shown in place. The skull in this case resting on a relatively hard surface had, for some reason, not become infiltrated with sand, and had been crushed by the weight of the super-incumbent earth.

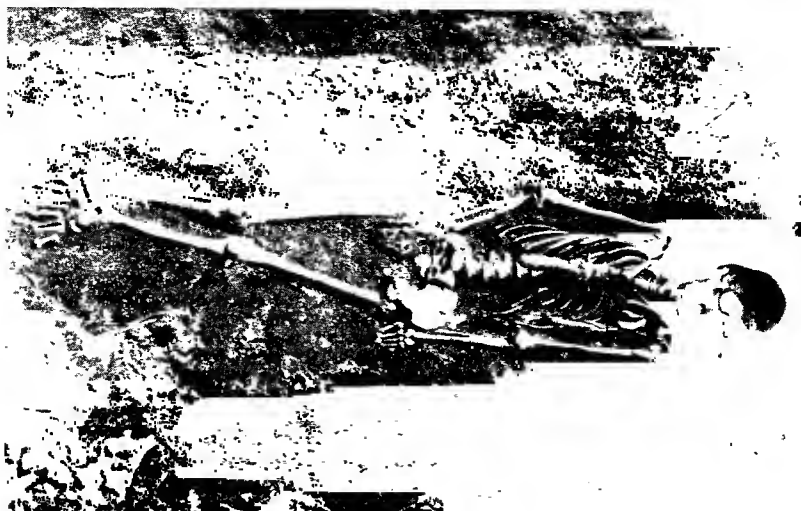
A third class of burials includes those that were fully extended, as illustrated in plate 4*a*. These were not found in the street until work was begun in the vicinity of mound no. 2. The first two of these burials were discovered outside of the street excavation.

¹ Ohio Archaeological Reports, Vol. 3.

These graves showed no attempt at preparation, other than the digging of a hole. The exact size of the original grave in most cases could be exactly determined by the trace of dark soil mixed with yellow sand. In seven of these graves four were without artifacts of any kind. All such burials were single interments. They were all buried flat on the back, and with one exception showed evident care at the time of interment to obtain an orderly arrangement of the body, as illustrated in plate 4*b* which shows the forearms crossed on the body. The location of these graves is indicated on figure 2. In all cases of these extended burials sand had filtered into the skull cavity, thus aiding in supporting it. They were, therefore, in fairly good condition, although the portion of the field in which they were located seemed to be much damper than the portion containing the completely flexed burials. Special attention should be called to four of these fully extended burials.

Burial no. 11, plate 5*a*, a fully extended adult, perhaps 30 years of age, was not accompanied by any artifacts. It seemed impossible to determine the sex with certainty. During life this subject had received a severe injury to the right parietal. This injury, which is elliptical in form, about 1.25 inches long by 0.75 inches broad, did not cause immediate death, as is shown by the restoration of the bony tissue. Several of the author's medical friends have variously estimated the length of time necessary to produce the amount of restoration at from three to five months, the general opinion being, however, that this wound ultimately caused death.

Burial no. 16 was discovered about five p.m., at the close of a very rainy afternoon. The light was much too poor to hope to take a photograph of this skeleton, an adult female fully extended. It was thought unwise to leave the grave unexplored until morning, as on two former occasions where a grave had been left incompletely examined at the close of a day's work it was found rifled and all evidence destroyed by irresponsible persons of the neighborhood. Work was therefore continued in the dusk and the skeleton finally removed. This burial was accompanied by a large number of bone beads. While the skeleton was in fair con-



a

The "fully extended type" of burial.



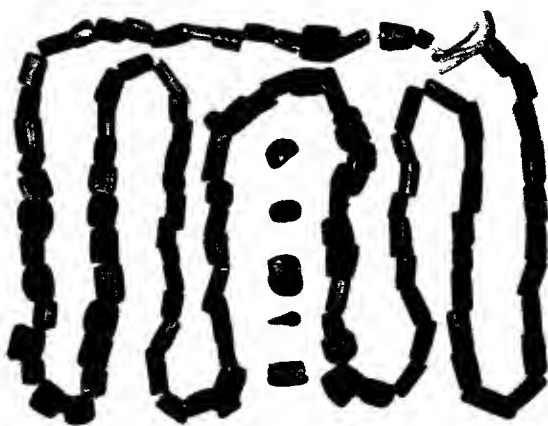
b

Showing orderly arrangement of body at time of interment.



a

A fully extended adult found in burial no. 11.



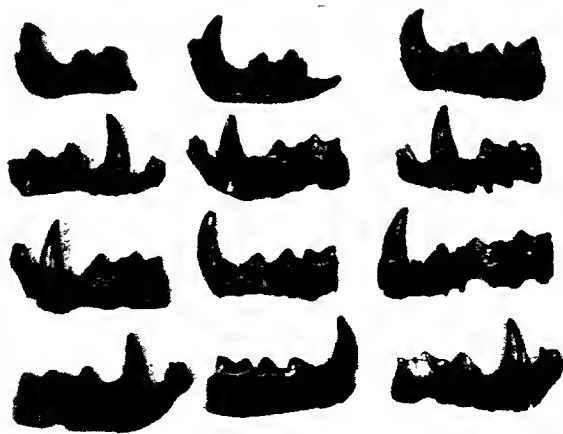
b

Beads taken from burial no. 16.



a

An adult male found in burial no. 4.



b

Twelve jaws forming headdress of cut animal jaws found with burial no. 4.

dition the beads were badly decayed, the majority being only forms in the sand. Many beads were split longitudinally into thin splinters by the decaying process. Altogether, with the greatest care, some 115 beads were found in such condition that they could be restored. Plate 5*b* shows the beads after restoration and gluecizing to harden and preserve them. It is to be noted that two of these beads were double-drilled, so that they could have been used to receive a double cord. It would appear that some of these beads were made from large bones with thin walls, possibly the tarso-metatarsus of large birds. Others appear to have been made from rib bones, as they are quite flat and bored non-symmetrically. Because of the very decayed state of these beads, and the early dusk of a rainy summer day, it was impossible to discover any ordered arrangement of these beads on the skeleton, as they were scattered from neck to hip. Only those which were first reached and found somewhat removed from the skeleton could be restored. Those under the skeleton were too badly decayed to be preserved even with the greatest care.

Perhaps burial no. 4 is the most interesting of all investigated at this site. This skeleton, an adult male, fully extended, had what appeared to be a head-dress of cut animal jaws. (See plate 6*a*.) The jaws appeared to have been arranged in a double row, only five showing in the photograph. When the skull was lifted, a total of twelve were found in a condition to permit restoration. These restored jaws are shown in plate 6*b*. This skull was in poor condition for recovery, as the burial was not deeper than twenty inches from the present surface of the field. As shown in plate 7*a*, which is a close-up of this skull, the lower jaw had been disturbed, perhaps by plowing the soil immediately above it. This was evidently a very aged individual, as the lower jaw contained only a few teeth. The other cavities had been completely healed. This picture was taken near night-fall after a very heavy rain had fallen on the partially exposed burial, wetting the dirt in the skull, and by expansion causing all the sutures to open up. The skull was buried on the left side. Immediately in front of the face was a large garfish head. This head measured some fourteen inches long; the heavy downpour caused this head also to dis-

integrate into the separate bones before the photograph was taken, but this undesired washing brought out in strong relief the large teeth of this ancient fish. Between this garfish head and the skull was found the penis bone of a raccoon. This may have been used as a pin in the headdress, as the curved end shows an attempt at pointing. On the breast of this skeleton was a small hematite celt, one inch broad, by one and a half inches long, with sharp edge and high polish, accompanied by the bone gorget, shown in plate 7*b, c*. This gorget is quite evidently made from a part of a human skull. It was drilled for suspension from the interior side of the skull only, the holes meeting, drilling from the edge of the gorget so that the front face of the gorget, which is the outer side of the skull, was left perfectly smooth. It is almost exactly circular in form, and two inches in diameter. From the curvature of the interior surface it seems possible to identify this gorget as cut from the upper portion of the frontal bone.

The cut animal jaws composing this headdress were submitted to Dr. W. D. Funkhouser, Head of the Department of Zoology, of the University of Kentucky, for identification. They proved to be all jaws of the wolf (*Canis occidentalis*), and in most cases upper jaws. By comparing them with the dentition formula of the wolf, it appears that they were cut off just back of the last premolar. An inspection of a wolf skull makes the cutting at this place easily understandable. At this point the skull bone is thinnest in the upper jaw, and the maker of these ornaments, by so cutting got the maximum number of teeth for a minimum of effort in cutting and polishing.

Burial no. 6, plate 8*a*, is of interest in that it shows a burial fully extended, in a hole somewhat elliptical in shape, about four feet by three feet, and five feet deep. The hole was much too broad for a single burial, and yet much too short for a fully extended burial. It would appear that the hole was not made originally and primarily for a grave. The bottom of the hole was not flat, but deeper in the middle. The body had been placed with the head and trunk in the hole, with the head much higher than the body, and the legs sloping at an angle of some thirty degrees upward. The presence of this burial not being suspected,



d

Skull of male found in burial no. 4.

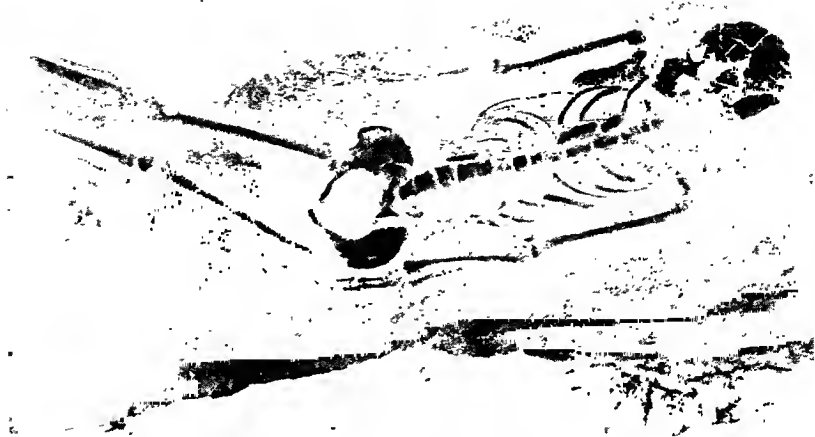


b



c

Bone gorget found with burial no. 4.



a

Burial no. 6.



b



c

A bone gorget found with burial no. 13.

a scraper struck the highest point of the skull, and almost at the same time another scraper struck the feet at a higher elevation. This burial is of interest also from the fact that with this burial, or perhaps, more accurately, in this hole, was to be found a mass of rubbish, such as might easily be accumulated about an Indian camp site—broken pottery, animal bones, mussel shells, deer horns, broken hammer stones, and an assortment of river pebbles of different sizes and material, most of which showed the result of hammering, together with a number of very crude stones, discs, from one to four inches in size. From the character of this material it is to be supposed not that it was placed in the grave with any intent to honor the dead, as were other artifacts, but only to help fill up the hole. It would seem fair to assume that this hole, after receiving the body, was filled with rubbish and camp debris of whatever kind that might be available at the time.

Burial no. 13, that of a fully extended adult, contained nothing save what appeared to be a part of a bear's skull. This fragment of skull was broken into quite a number of small pieces, and was not thought to be of any particular interest. However, it was saved for further investigation. After it was cleaned, an attempt was made at restoration. It was a very pleasant surprise to find the pieces fitting together to form a bone gorget. This gorget had been cut from the upper jaw of a bear. After cutting through the skull just back of the last premolar, the whole bone was ground down to a flat surface parallel to the roof of the mouth, leaving the teeth to project from the bone. This gorget, as shown in plate 8*b*, *c*, has two holes drilled through the thin bone of the roof of the mouth, doubtless for suspension. This gorget shows careful workmanship, and evidently much effort was expended to grind these teeth. The large canine, as well as the others, is ground to a flat surface. The use of such gorgets may explain the finding in another Kentucky site, by Smith,² as elsewhere, the cut canine teeth of the bear. These cut teeth, which, found separately, show no means of attachment

² The Prehistoric Ethnology of a Kentucky Site, Am. Museum of Nat. Hist., Vol. 6, Part 2.

as ornaments, have been the cause of more than one writer's speculating on the purpose of such cutting. In the author's collection there are four such cut canine teeth (see pl. 9*a-d*), taken from Foxfield, the site reported on by Smith.

A fourth type of burial on this site was represented by only two graves. They were stone-lined, box form. The locations are shown in figure 2. One of these graves was found before the author reached the site, and was completely destroyed by the scrapers before it was learned that it was a grave. It was within one foot of the surface, and the skeleton had almost disappeared. No artifacts were reported. The second grave of this type was discovered during a suspension of work, due to heavy rain. The finding was made by two boys of the village, who removed the flat stones from the top and shoveled out the grave, leaving only the vertical stone walls of the grave in place. The skeleton was thus destroyed, and the grave quickly filled level full of water. The owner of the subdivision, on learning of this discovery, stopped the boys and obtained from them a perfect pot, which is shown in plate 9*e*, which they had taken from the grave. One boy at first admitted, but later denied, that there were other artifacts taken from this grave. This pot is five inches in diameter at the mouth, and has the capacity of very nearly one quart. After weather conditions permitted the resumption of work, the author sought to obtain a photograph of this grave, but the water standing in it had so softened the walls that all had caved in, leaving only a pile of stone. It was evident that this grave, as also the first one of this kind, was made by placing large slabs of sandstone on edge to outline the grave, and covering the whole after burial with other flat pieces of sandstone laid horizontally. This sandstone can be found in quantity in the river cliffs only some three hundred feet distant. The top of this last grave was three feet below the surface of the field.

Some fifty feet to the south, and within the street limits, at a depth of eighteen inches, was found a circle of large river gravel, most of them as large as one's head, and arranged in a sort of cobblestone pavement in a circle some ten feet in diameter. On the top of this crude pavement was a quantity of ashes and



a *b* *c* *d*

Cut canine teeth.

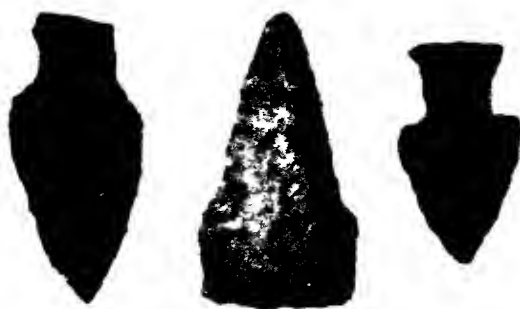


A perfect pot found in a stone-lined box form grave.



f *g* *h*
i *j* *k*

A collection of pot shards picked up in the general digging.

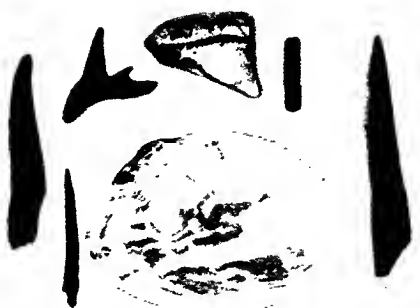


a

b

c

Three pieces of well-worked flint found in the general digging.



d

e

f

g

h

i

j

A variety of objects found in the general digging.

charcoal mixed with earth, and the usual camp rubbish. This was evidently the site of an ancient hearth, and may have marked the center of a tepee. Its location is shown in figure 2.

Plate 9*f-k* shows a collection of pot shards picked up in the general digging on this field. The large shard, about 6 by 6 inches, has a curvature which shows the pot of which it is a part to have been 12 to 14 inches in diameter, and at least that deep. The small cup with single handle, restored from several fragments found closely associated, is only 2.25 inches in diameter, and has a maximum depth of the same amount. It seems (although well made and as hard burned as any of the pottery) to be too small to have been of any utility. The rim shards of pots very rarely showed any distinct handles to have been used, but a few were found similar to plate 9*g*, which presents the method of attachment to the pot. Rim shards showed the semicircular lug to have been predominant over other types of handles and decoration. In most cases these lugs extend above the general level of the pot rim, and seem quite similar to those reported by Smith and Mills.

Plate 10*a-c* shows the only three pieces of well-worked flint found on this site, all derived from general digging and not associated with graves. The central flint object was probably a knife, and appears to have been hafted at the small end, in which case the "working portion" was the straight edge with square shoulders.

The general digging on the site yielded the usual variety of artifacts, as in plate 10*d-j*, which shows a cut deer horn, worked fish spine, large fish fin, highly polished and pointed, engraved mussel shell, highly polished bead, awl, and mussel shell, having two holes, probably used as a hoe or scraper. Material of this kind was quite abundant over the whole of the site.

It is difficult to draw any definite conclusions from so hasty an investigation. This site was worthy of a very careful and complete excavation. However, when it is considered that the information as to much of this area was about to be destroyed, and the remainder made unavailable for investigation by being sold in small lots, and having dwellings erected upon it, the incompleteness of this investigation may be pardoned. Again, when it is remembered that the primary purpose of this excavation

(at the expense of the owner) was to open up a town site, and not to do archaeological research, the failure to obtain more exact information may be understood. Even with the data so incomplete, it is believed that one may venture to suggest that this site on the bank of Tygart creek, on the ancient bed of the Ohio river, was inhabited at different times by two different peoples, or at least by peoples having two distinctly different burial customs, as represented by the completely flexed burial with no artifacts, and by the fully extended burials, sometimes with artifacts. From the distribution of the graves discovered, it would seem that mound no. 1 was more closely associated with the flexed burials, and mound no. 2 with the extended burials. If indeed there were two different peoples dwelling here, there seems to be no conclusive evidence of priority of one over the other. This fact may point to a single people with two rather distinct types of burial, as appeared at Feurt Village sites, as reported by Mills.³ In any case it seems certain that here is another outlying site of the great Fort Ancient Culture, represented by the Baum and Gartner sites in Ohio and Fox field in Kentucky, as reported by Smith.⁴

The single partly flexed burial may be a single example of some transient people, the prepared clay bed suggesting kinship to the so-called Pre-Hopewell Culture. However, there being only a single grave of this type, no great importance can be attached to it, as it may represent only an individual departure from the customary form.

The two stone-lined graves, very similar to those in many other sites in Kentucky, appear to be the most recent of all. They, too, may have been intrusive burials by a transient people, camping on this site at no very remote period. However, since stone-lined graves occur in a great variety of burial sites, they may represent only another departure from custom made easy by the presence near at hand of a plentiful supply of sandstone slabs suitable for the purpose.

³ Op. cit.

⁴ Op. cit.

It may be said in conclusion that the incompleteness of this hasty investigation is another indication of the lack of financial means, both public and private, in Kentucky, to conduct such investigations in a satisfactory manner, before the evidence of prehistoric man, available to this generation, has been completely destroyed.

The author desires to acknowledge his indebtedness to Mr. Victor Dodge and Mr. Rausie Denten, both of Lexington, Kentucky, who each spent a week with him on this site, and to Dr. W. D. Funkhouser, of the University of Kentucky, who visited the field, and assisted in identification and restoration of the artifacts and skeletons.

UNIVERSITY OF KENTUCKY,
LEXINGTON, KENTUCKY

THE CALPOLLI-BARRIO IN A PRESENT-DAY MEXICAN PUEBLO

By ROBERT REDFIELD

THE social organization of the Aztec has been considered by Morgan¹ and again by Bandelier,² whose work has been reconsidered and appraised by Waterman.³ It is agreed that the fundamental social unit was the calpolli. The sixteenth century writers, in this respect perhaps more than in others, are not always clear or consistent, and the precise nature of the calpolli is not in all respects certain. The part played by kinship in fixing the unit is undetermined. Waterman, observing the prevalence of sibs among the higher Indian societies, and relying on statements made by Zurita⁴ and Torquemada,⁵ declares the calpolli to have been a group of kin.⁶ Spinden⁷ doubts that the group was ever exogamic and a true sib.

But the calpolli certainly had a variety of wide-reaching and important functions. Further summarizing the conclusion reached by Waterman, it may be said: Each calpolli owned in common lands separate and distinct from lands of the other calpolli. These lands could not be sold and only members of that calpolli could settle upon them. The calpolli assigned to families small tracts within the calpolli property. These assigned fields (*tlalmilli*) were

¹ Lewis H. Morgan, *Ancient Society*, chapt. 7.

² Adolph F. Bandelier, "On the Distribution and Tenure of Lands and the Customs with Respect to Inheritance, among the Ancient Mexicans," *Eleventh Annual Report, Peabody Museum of American Archaeology and Ethnology*, 2: 384-448, 1878; and *id.*, "On the Social Organization and Mode of Government of the Ancient Mexicans," *Twelfth Annual Report, id.*, 2, No. 3, 1879.

³ T. T. Waterman, "Bandelier's Contribution to the Study of Ancient Mexican Social Organization," *Univ. of California Publications in American Archaeology and Ethnology*, 12: 249-282, 1917.

⁴ Alonso de Zurita, *Breve y sumaria relacion de los senores y maneras y diferencias que habla de ellas en la Nueva Espana*, etc. Ternaux Compans, *Voyages*, 10: 53.

⁵ Juan de Torquemada, *I-II parte de los veinte y un libros rituales y monarchia Indiana*, etc. Madrid, 545, 1723.

⁶ Waterman, *op. cit.*, 253.

⁷ Herbert J. Spinden, *Ancient Civilizations of Mexico and Central America*, 190.

cultivated by the recipients, and the right of occupancy and tillage was inheritable. But if the assignee failed to cultivate the field, or if the family died out, the calpolli might reassign that field to another family. There are statements that each calpolli was sovereign within its limits. Each had a council house (*tecpan*); each had judges to pass on local irregularities, although their decisions were apparently subject to review by tribal authorities. Each had its own god and place of worship. Apparently the men of each calpolli formed a military society, an Aztec "army," and fought as a unit under a standard bearing an emblem of the calpolli. In each calpolli there was a military leader, and one, two or three (it is not clear just how many) civil officers. It is sure therefore that the calpolli enjoyed important functions, governmental, religious and military, as well as functions closely related to the method of land tenure. But in each case the functions fitted in with and formed a part of a larger tribal system.

This type of organization was apparently characteristic not only of Tenochtitlan but of many other lesser pueblos within the Nahua area. At the time of the Conquest, the Spaniards did not in most instances attempt very definitely or radically to reform the systems of local government of the lesser pueblos. There survive today many of the landholding pueblos of pre-Columbian times, bearing at once the conspicuous traces of Aztec culture and also the strong imprint of Spanish colonial institutions. In the case of some institutions, Spanish custom was not so inconsistent as seriously to modify the Indian forms. Thus, the communal lands of the pre-Columbian village, the *altepetlalli*, survive in many a Mexican village under the name of *ejido*, and about them cluster many of the problems involved in the present agrarian reforms.⁸

A typical pueblo of this type is Tepoztlan in the State of Morelos. Tepoztlan⁹ has a pre-Columbian history of some reliability. The glyphs on a temple situated just above the present town include a date that has been correlated with modern chronology to read 1502, the last year of the reign of the Aztec war-

⁸ G. M. McBride, *The Land Systems of Mexico*, chap. 5.

⁹ E. Seler, "Die Tempelpyramide von Tepoztlan." *Globus*, 73: 123-127. Also in *Gesammelte Abhandlungen*, 2. 200.

chief, Ahuitzotl. The pueblo was a pueblo of the Nahuatl-speaking Tlahuicas, whose principal city was Cuauhnahuac (Cuernavaca). The Codex Mendoza¹⁰ lists Tepoztlan as among those pueblos conquered by the Aztec under the elder Montezuma. The Codex Aubin-Goupil states¹¹ that in 1487 new kings were installed in Cuauhnahuac, Tepoztlan, Huaxtepec and Xiloxochitepec. The history of the town is also known immediately after the Conquest. In 1521 Cortez arrived in Tepoztlan on his way from Yautepec to Cuernavaca and as the inhabitants did not submit, he set fire to the town.¹² When the conquest was achieved, Tepoztlan was among the towns awarded to Cortez.¹³

While making studies in Tepoztlan during 1926-27 as a research fellow of the Social Science Research Council, I was early impressed by the importance in the social organization of the present-day village, of the *barrio*,¹⁴ which was readily recognizable as the *calpolli* of pre-Columbian days. The survival, although in a much altered form, as an important unit, of a social grouping characteristic of pre-Columbian society, offers an opportunity to consider the mode of change and readaptation of a social institution. Although our information as to the *calpolli* is largely drawn from descriptions of Tenochtitlan, it is probably justifiable to compare such descriptions with the present situation in another, but near by, pueblo which was probably characterized by very much the same culture.

Tepoztlan is situated at the head of a valley closely bounded by steep cliffs which are broken just at the head, permitting one there to enter the pueblo from above. So entering in the rainy season one finds the town almost completely buried in foliage. Only the towers of eight churches are visible. One of these, a massive colonial structure, is the *Templo Mayor*, situated in the

¹⁰ Plate 9 of the Kingsborough reproduction

¹¹ So says Seler, *op cit.*, 124.

¹² Bernal Diaz del Castillo, *The Conquest of New Spain*, 10, chapt. 144. Hakluyt translation, 4: 67.

¹³ *Coleccion de documentos ineditos del Real Archivo de Indias*, 12, 554-563, 1869, Madrid

¹⁴ The word "*barrio*" is also used in Mexico today for artificially determined municipal wards, and also for certain small independent rural communities.

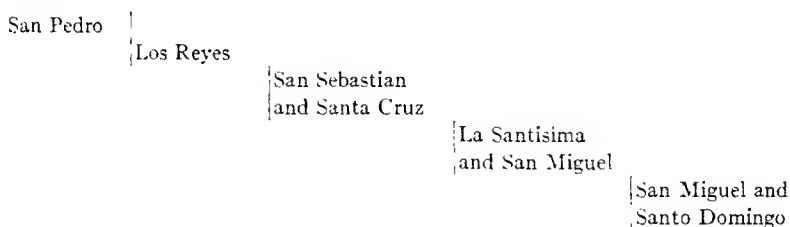
central plaza and used by all the inhabitants. The other seven churches, or chapels (*capillas*), are much smaller and are scattered about the village, no two being close together. Each is located in, and is the property of, one of the seven barrios. The chapel and the barrio takes its name from the saint whose image is placed on the altar of the chapel and on whose name-day falls the fiesta of that barrio. Santa Cruz has not one, but two fiestas, one on May 3rd, the other on August 6th, because there are two images in the chapel, that of Santa Cruz and that of San Salvador. In this case, while the barrio is known as Santa Cruz Saint Salvador is thought of as the patron of the barrio. The small hamlet of Ixcatepec, just outside Tepoztlan, has the same two images and consequently the same two fiestas. By arrangement of long standing however Ixcatepec celebrates its fiestas a week after those of Santa Cruz.

The barrios vary a great deal in size. The number of houses in each barrio is approximately as follows:

San Pedro	35
Los Reyes	65
San Sebastian	14
Santa Cruz	100
La Santisima (Trinidad)	175
San Miguel	150
Santo Domingo	175

Roughly speaking, there are four large barrios and three small ones. The four large barrios, those last named, are grouped about the central plaza, while the three small ones are situated above (west of) the others. The boundaries of the barrios are clearly defined. Sometimes a boundary runs in the middle of a street and sometimes the houses on both sides of the street pertain to the same barrio, the boundary then running just behind a row of houses. Occasionally there are irregular jogs which take a few houses out of a block and include them in another barrio. A whole block of houses, geographically in San Miguel, belong to the barrio of Santa Cruz, at the opposite side of town. How this came about, I do not know. The inhabitants of these houses take their turn in the care of the chapel of Santa Cruz, and pay the contribution paid by barrio-members at the time of the fiesta of that barrio.

Topography.—It is clear that in Tepoztlan topographic factors have been of some importance in fixing barrio boundaries. In many cases there is now a *barranca* or at least a sudden declivity where one barrio ends and another begins. This is especially notable in the cases of the boundaries between San Pedro and Los Reyes, Los Reyes and Santa Cruz, Los Reyes and San Sebastian, La Santisima and Santo Domingo. Tepoztlan is situated on a steep slope, and the barrios occur in the order previously given from the upper end of the slope to the lower. If one looks at the village from the mountains on the south side of the valley, the seven chapels appear in a ranking series, one above another, occupying five obvious levels. The following diagram illustrates this.



It is worthy of note that those pairs of barrios which occur on the same level resemble one another in cultural features more than other pairs. Thus, San Sebastian and Santa Cruz have special similarities in occupations and religious sentiments and bear the same animal appellation (as will be later explained); while in the case of San Miguel and La Santisima one of the principal streets runs continuously on the same level through both barrios and the pair are much alike and cooperate for the Carnival and for other fiestas.

Suggesting that the Tepoztecos are conscious of the part played by topographic features the fact appears that during an annual fiesta an actor impersonating their eponymous "king," "*El Tepozteco*," recites a traditional role in Nahuatl in the course of which, as he is defying the besieging armies of other neighboring villages, he says: "*Ica hueloncan nechmoyohualotica nahui notepe, chicome tlatelli, chicome tlacomolli, ihuan chicome tlatmimilolli*," i.e., "Here I am surrounded by my four mountains, seven slopes, seven hills

and seven canyons." This is clearly a reference, in topographic terms, to the barrios.

Barrio membership.—The word "barrio" is frequently translated "ward," but "ward" does not correctly suggest the nature of the unit. In the first place the barrio is not a political unit. For purposes of municipal government the town has been divided into seven *demarcaciones*. It is plain that the barrios have been the general pattern for the delimitation of the *demarcaciones*, but the boundaries of the two sets of units do not coincide. People do not know in which *demarcacion* they live; many are probably ignorant that such a unit exists. In the second place, while one becomes a member of a "ward," as we know it, merely by going and living in that area, one may not in this way become a member of a barrio. Membership in the barrio is, generally speaking, hereditary. In most cases people live on the sites on which lived their ancestors for many generations. These house-sites bear individual Nahuatl names by which addresses are given; street names are rarely used.

When therefore an individual comes from without a barrio and rents a house there, he does not thereby become a member of that barrio. When I asked for lists of barrio-members, my informant would omit to name the occupants of certain houses. In every case these turned out to be houses rented by outsiders or, in a few cases, houses owned and occupied by members of other barrios.

This latter case leads to the point that there are living in every barrio certain families who are known to belong to a barrio other than that in which they live. This probably came about when an ancestor bought a site in some other barrio. One of my informants, living in Los Reyes, belonged to La Santisima, although neither she nor any other informant could tell at what time the family had moved. In Los Reyes there are five families from La Santisima, two from San Miguel and three from Santa Cruz.

This probably means that in these cases it was the entire family that moved and there was no one left in the old barrio to continue the membership there. Of course a man may and probably frequently does change his barrio membership by changing his barrio residence. This may come about if a father with several sons buys

for one or more of them a house-site in another barrio. The son, usually the eldest, who remains in the old barrio, carries on after his father's death the membership in the old barrio and fulfills the pledge to that *santo*, while a younger son takes up membership in another barrio. It will be observed that there is a tendency for the men within a barrio to be related rather than the women, because in most cases a married son brings his wife to live in his father's house, or in a new house built on or near the same site, while daughters marry and may often go to live in another barrio. I find no evidence that the barrio affects choice of spouse; there seem to be no influences on such choice except influences of proximity and temperamental preference.

Membership in the barrio is attested by the important fact of payment of the offering (*limosna; huentli*) at the time of the fiesta of the *santo* of the barrio, and it is so perpetuated in the cases of individuals belonging to barrios other than those in which they live. Thus, the La Santisima families in Los Reyes pay the offering when the fiesta of La Santisima takes place. They may also pay the offering for the fiesta of Los Reyes, but this is recognized as a later obligation and does not cancel membership in the barrio of La Santisima. By this ceremonial payment the fact that the people living in the Santa Cruz enclave within San Miguel belong to Santa Cruz is annually revived at the fiesta of Santa Cruz. The offering is thought of as a perpetual pledge to the *santo*, irrevocable, and binding on a man's family after his death. The money so paid is expended for one or both of two purposes—the candles burned before the *santo* on the day of the fiesta, and the tower of fireworks (*castillo*) burned in front of the chapel on that occasion. The payment for each of these purposes, of the year's installment of the perpetual pledge, is an occasion attended by solemnizing ritual, both acted and spoken. The ceremonies take place at the houses of the majordomos of the candles and of the *castillo*, and the occasions are known respectively as the *cerahpa* and the *castiyohpa*.¹⁵

¹⁵ Redfield, The Cerahpa and the Castiyohpa in Tepoztlan Mexican Folkways, 3: 137, 1927.

The barrios and the land system.—The *ejidos* of Tepoztlan are not, as were the *altepellalli* (town lands) of the pre-Columbian town, divided into sections among the barrios. The pastures and woodlots belonging to the town are used in common by all the pueblo without regard to barrio membership. The cultivated fields, the *milpas* and *corrales*, which are absolutely owned by individuals and are sold and transmitted by inheritance, are not grouped according to barrios. A resident of San Miguel may own a *milpa* over near Santa Cruz at the other side of town, although as a matter of fact *milpas* are, naturally, more often than not situated near the owner's dwelling.

But there are communal lands besides those uncultivated areas belonging to the entire pueblo. Each barrio owns lands the produce of which goes to the support of the chapel of the barrio. Or, as the Tepoztecs would put it, the produce goes to the support of the *santo*. The lands are referred to as *tomimil to santo*, "the *milpas* of our *santo*."¹⁶ Conformable with law, the legal title to these lands is held by an individual, but he holds in trust for the *santo*. His interest in the land is no greater than that of any other member of the barrio. The lands are sowed, tended, and harvested in common by the men of the barrio, under the direction of the majordomo of the *santo*, and the crop, when sold, goes to the upkeep of the chapel—for candles, curtains for the altars, etc. Most of the lands so communally owned by the barrios are *milpas* on which maize is grown. But San Miguel also owns a grove of chimoyas, and San Pedro owns a grove of cedars. (Cedar boughs, now as in pre-Columbian times, are much used in decorating altars and are subject to other religious and magical uses.) In addition, certain of the barrios, notably San Miguel, own bulls which are used for *toros*, a sort of rustic bull-fight sometimes held on the fiesta of the *santo*. During the rest of the year the bulls are loaned out to members of the barrio. The year of my visit San Miguel lent its bulls to Los Reyes at the time of the fiesta of the latter barrio; Los Reyes had none of its own, or too few.

¹⁶ The villages in the valley of San Juan Teotihuacan, just north of Mexico city, had such lands of the *santo* not long ago, but have them no longer. Manuel Gamio, *La Poblacion del Valle de San Juan Teotihuacan*, Tomo II, 2: 218.

The barrio, a social unit.—It is in this social and festal organization of the community that the barrio maintains its importance. Even when there is no fiesta the chapel serves as a sort of social center for the barrio; the water tank is generally on that corner and near it people congregate to gossip. Some of the barrios have purchased gasoline lamps which are hung in the street outside the chapel, and here the youths of the barrio come in the evening to talk, gamble, or listen to songs. But it is at the time of the annual fiesta that the collective importance of the barrio members reaches its highest importance, and the chapel becomes the great focus of interest for the entire pueblo and even for the neighboring villages. The decoration of the chapel, the ceremonial bringing of the candles, the erection and burning of the *castillo*, the preparation and consumption of the festal dishes, the playing of the ancient flute or of the *teponaztli* on the roof of the chapel, one or more sacred dances and sometimes *toros*—all constitute a program of ritual and entertainment which occupies from one to eight days. Although members of other barrios take part in the fun, the barrio whose *santo* is celebrated acts as host, and its members very much feel their collective importance.

The barrio as a religious organization, the central religious building, the patron-god whose image is contained within it, and elements in the ceremonial (e.g., the *teponaztli*, offering of flower garlands, *copal* incense, etc.) are survivals from pre-Columbian culture. There are frequent references in the sixteenth century writers to the temples belonging to the *calpolli*¹⁷ and to the lands the produce of which went for their upkeep.¹⁸ In the commentary to the Codex Magliabecchi¹⁹ it is stated:

Each barrio has another idol. They say it was he who guarded the barrio. To him they run with their petitions in times of necessity. On the day on which the festival of this idol falls, the people of the barrio offer him solemnities. The other barrios do not.

¹⁷ As, for example, Sahagun, *Historia de las cosas de Nueva Espana*, p. 211 (appendix to the second book), Las Casas, *Historia de las Indias*, chapt. 130, p. 347.

¹⁸ Las Casas, *op. cit.*, chapt. 130, p. 373.

¹⁹ Commentary to section 62. Published as "The Book of Life of the Ancient Mexicans," by University of California, 1903. Translation by T. T. Waterman.

This is precisely the situation in Tepoztlan today. It is not necessary to enlarge on the fact that the *santo* in each chapel is regarded as the special god and protector of the barrio and that this sentiment is directed toward the particular wooden image there enshrined. The *santo* is a symbol of the collective sentiment of the barrio. It is not uncommon for an individual to boast of the superior miraculousness of the *santo* of his barrio,—“our barrio is the most important because our image is the most miraculous.” San Salvador protected the people of Santa Cruz during the revolution, San Sebastian appears in dreams to the people of his barrio and offers them advice, and so forth.

There is therefore a morale, an *esprit de corps*, inhering in the barrio, embodied in the *santo* and occasionally expressed as rivalry. Every exertion must be expended on the fiesta to maintain the barrio prestige. The organizations which support the Carnival, a secular fiesta, are creations of three of the barrios. These *comparsas* (groups of masked men “leaping” together) strive each to make a better show than do the others. Disputes not infrequently arise. During my stay trouble between Santo Domingo and San Miguel was only averted by an arrangement that the two *comparsas* were to leap on different days.

This rivalry does not prevent the barrios from functioning cooperatively on the occasion of important fiestas celebrating a *santo* shared by the entire pueblo, or a *santo* of one of the small villages near by. If such an occasion be very important, involving a fiesta of several days or a week, an organization of majordomos is formed from the barrios and from the smaller villages outside Tepoztlan, and each in turn is responsible for the candles burned on one day during the fiesta. The unit thus both divides and unites the natural community of which Tepoztlan is the most important town; in competition and cooperation of barrios the social-religious fabric is woven.

The barrios are the important social unit. The members of a barrio tend to think and act alike. In very large measure this is because of the unifying and centralizing influence of the chapel and its *santo*, with the attendant cooperative work and play. The play has been mentioned. The work is connected with the care

of the chapel and of the *milpas* of the *santo*. A group of men of the barrio together prepare the land for sowing, together hoe the growing maize, together gather the harvest. A group of women of the barrio together prepare the food for the men so employed in the fields. The wife, or principal woman in the household, of the majordomo of the *santo* organizes the cooking of tortillas, beans, and meat.

In some instances there are economic factors which emphasize this collective feeling. Thus, what charcoal is burned in Tepoztlan is nearly all burned in San Pedro, and, to a less extent, in Los Reyes. The members of these barrios, in cutting, hauling and burning wood, are drawn together by their common occupation. More marked is the part played by the twisting of ropes of maguey fiber by the inhabitants of San Sebastian. This industry, introduced a generation ago by an immigrant to Tepoztlan from another village, has spread to few houses outside of the barrio in which he settled; but in San Sebastian almost every household is so occupied; and when there is an important fair in some larger town in the state, the men of San Sebastian go there almost in a body to market their lassos and riatas.

Barrio cultures.—The barrios have, indeed, obviously different cultures, or, what is the same thing, different personalities. The varying characteristics of the barrios are recognized by the Tepoztecos themselves, and at least the more reflective of them can express the differences they feel. Descriptions so received agreed with my previous notes with remarkable exactness. Thus, Santo Domingo is the most civilized barrio, and the most patriotic (i.e., most nearly conscious of national feeling—their chapel is decorated with Mexican flags; a modern orchestra was organized here, etc.). Santa Cruz is strongly primitive-Catholic, exclusive and independent—"Santa Cruz governs itself like a little republic." San Pedro is a barrio of poor, illiterate people who preserve to a marked extent ancient mentality and resent the presence of outsiders; and so forth.

Barrio names.—The consciousness of barrio personalities receives an expression in names applied to the barrios. These names are in Nahuatl and are in every case the names of animals. The names are:

Santo Domingo:	<i>cacame</i>	"toads"
La Santisima:	<i>tzicame</i>	"ants"
San Miguel:	<i>techihcicame</i>	"lizards"
Santa Cruz and		
San Sebastian:	<i>tepemaxtlame</i>	"cacomixtles" ²⁰
Los Reyes:	<i>metzalcuanime</i>	"maguey worms"
San Pedro:	<i>tlacualtitzin</i>	"tlacuaches" ²¹

These names are used, somewhat humorously, to refer to the members of the barrio considered collectively. Thus as the saint-day of Santo Domingo, January 12th, approaches, it will be said: *Ye acitihuitz ilhuittl cacame*, "Now comes the fiesta of the toads."

There are two explanations offered by the Tepoztecos for these names. According to the first explanation, the animal named is one particularly common at the time when the fiesta of that barrio is held. Thus, the fiesta of La Santisima is in June when the *milpas* are plowed for sowing and many ants therefore appear on the ground; that of Santa Cruz is in May when the cacomixtles come down to eat the sapotes which are ripe at that time and falling to the ground; that of Los Reyes in January when the maguey is opened for pulque and the worms come to eat the exposed pulp. The other explanation, which is more common, declares that the names are descriptive of the characteristics of the barrio members. The people of La Santisima are called ants because there are so many of them; they run over the ground and get into all sorts of affairs. Those of Santo Domingo are called toads not only because they live nearest the water but because they swell so with their own importance. Those of San Miguel are called lizards because they are so quick (*lijero*) and light-minded, liking to play and sing so much at night on the street corners. Those of Santa Cruz are called cacomixtles because they live up under the rocks with the cacomixtles. These characterizations are certainly apt. It is highly doubtful that these names represent modifications of pre-Columbian names of calpolli. Similar collective designations, though not always in Nahuatl and usually not animal terms are found in other Mexican villages.²² But the names do represent

²⁰ The bassarisk. *Bassariscus astuta*.

²¹ The opossum *Didelphys* sp.

²² Gamio, op. cit., tomo II, 2: 492.

the consciousness of barrio individualities and help to show how Tepoztlan is a federation of semi-independent units, as was no doubt the pre-Columbian pueblo.

In summary, it may be said that the calpolli has persisted in Tepoztlan as the barrio. There is evidence that topographic features there played a part in fixing the boundaries of these units. The barrios are place-units, but tend to include groups of uninterrupted family-lines, tracing descent through the father's side. Membership in the barrio is perpetually recorded by an annual ceremony. The barrio, as was probably the calpolli, is of great importance in the religious organization and social interplay of the community. The *santo* of the barrio continues the protective function of the local god of the calpolli. The maintenance of the chapel of this *santo* and the annual celebration of the *santo* with the cooperative work and play demanded by the fiesta develop a strong group-sentiment in the barrio members. The barrios are sub-culture-groups within the larger village organization, and form a federation of competitive and also cooperative units.

The functions exercised by the calpolli which are not shared by its descendant, the barrio, are those involving warfare, and those having to do with economics and government so far as they relate to the pueblo or units larger than the pueblo. This is no more than saying that it is the tribal organization which was effaced by the Conquest. The local festal and religious organization, conflicting with no pattern imposed from outside by Spanish culture, persists, altered so far as required by other cultural changes. Tepoztlan is not a primitive society today; it is a "folk" group, in the special sense,—an illiterate enclave surviving inside a new cultural framework imposed from outside by a literate conquering culture of a very different nature.

WINDY PINES,
GLENVIEW, ILLINOIS

QUANTITATIVE METHOD IN ETHNOGRAPHY

By FORREST E. CLEMENTS

IN THE October-December (1926) number of the *AMERICAN ANTHROPOLOGIST* I published, with two co-authors, an article on a statistical method for showing special culture relationships.¹ This article dealt with the culture area of Polynesia, placing particular emphasis on the special culture relationships existing between the six main island groups or sub-areas within Polynesia. It was maintained that the described statistical procedure offered a more objective way of showing such relationships than the methods usually employed. In addition, certain ethnographical conclusions were adduced by way of showing how the statistical results might be interpreted.

This original paper confined itself for the most part to a straightforward description of the particular method, while certain of the more general aspects of the problem were omitted. Since its publication I have felt that these omissions might prove a handicap to anyone attempting to use the method, particularly as the idea behind this quantitative treatment is something new and is not to be likened to previous attempts at the use of statistics in ethnography. In the present paper I wish to remedy this as much as possible by including a discussion of what may be termed the more ideal or fundamental aspects of the application of this statistical procedure.

Another incentive to the present paper is an attack by Professor W. D. Wallis on our original paper. In addition to a discussion of the applicability of our method, this paper will include a reply to Wallis' criticisms.

In his paper Wallis takes issue not only with our ethnographical conclusions but also with our whole treatment of the data.²

¹ F. E. Clements, S. M. Schenck, and T. K. Brown, A New Objective Method for Showing Special Relationships. *AMERICAN ANTHROPOLOGIST*, N. S., 28: 585-604.

² W. D. Wallis, Probability and the Diffusion of Culture Traits. *AMERICAN ANTHROPOLOGIST*, 30: 94-106, 1928.

Furthermore, it seems that he has an idea of his own as to what constitutes objectivity and cannot bring himself to see anything of the sort in our method. Without entering into a dialectic discussion of his somewhat peculiar ideas on this last point, it may be pointed out that objectivity in science is manifested generally in the minimizing and elimination of the personal factor. That is to say, methods of collecting and treating data are devised which will as far as possible rule out the errors due to individual variability in subjective attitude. It was with this idea in mind that we called our statistical method objective, for it does tend to reduce the personal element in the treatment of data and in proportion as it does this it is objective.

In regard to Wallis' strictures on our conclusions, it is recalled that our original article specifically stated that these conclusions were only tentative as it was recognized that the data with which we worked fell somewhat short of that completeness which is desirable for fully adequate results. Nevertheless, these data did afford an opportunity for the illustration of a statistical procedure as long as the chief interest was centered on the mechanics of the quantitative treatment. Furthermore, the ethnographical conclusions were simply our interpretation of the statistical results and a criticism of those conclusions is not strictly a criticism of the statistical method.

In looking over Wallis' discussion of our paper it seems to me that he has not clearly distinguished in his own mind between strict method with its results and the judgments or interpretations based on those results. Thus, when we have shown that certain island groups or sub-areas possess a similar or a dissimilar culture, we have achieved certain results and, on the basis of statistics alone, must content ourselves with the bare statement that certain of these sub-areal cultures are similar or dissimilar. The explanation of why these cultures differ from or resemble each other lies beyond strict statistics, although this does not mean that we may not derive considerable aid from them.

This point will be more clearly illustrated by taking an example from Wallis' own paper. In substance, his example is as follows: there are three areas, M, O, and P. A certain trait *A* spreads from

area M to areas O and P. Subsequent to the spread, A may become changed in the various areas as shown.

M—A1; A2

O—A3; A4; A5.

P—A2; A4; A5.

Here, then, we find A4 and A5 in both areas O and P, while A2 is the only form of the trait in area M which is found in either areas O or P. If our statistical method were applied in this case it would show (what is here obvious because of the simplicity of the problem) that areas O and P are more like each other than either is like M.³

Knowing nothing of the diffusion from area M which Wallis has postulated, we might infer that there was a historical connection between areas O and P, but little or none with M. This however is merely an interpretation of the obvious fact that *O and P are actually more like each other than either is like M*. Wallis notes that our method would probably force the inference as to the close connection between O and P and points out the erroneous nature of such a conclusion in view of the posited connection of each with M and not with each other. He goes on to say that it is not necessarily claimed that such posited diffusion is what normally happens, but he insists that we must show that it does not normally happen. This question of the interpretation of demonstrated similarities looms large in his whole attack and it is partly for this reason that I stress it throughout this article. It will be seen as the discussion progresses that such diffusion as is posited above by Wallis is decidedly abnormal, that it amounts in fact to merely a logical possibility not at all probable.

At this point it may be profitable to embark on a discussion of a more general aspect of statistical procedure. Furthermore, it may now be affirmed that the method under discussion here is concerned with culture wholes and only slightly with particular single traits. That is to say, when using this method we are concerned with the influence or lack of influence of whole cultures on

³ Actually of course no statistical method would ever be applied to such a small collection of data.

each other. The diffusion or convergence of single traits is only incidental to our study, although taken by themselves they may constitute an interesting problem. It is the sum total of these single traits, the culture wholes, that interest us when using the statistical method.

In the case cited above we see that traits *A4* and *A5* have evolved independently in areas O and P since Wallis has postulated no connection between them. Even were we left in the dark as to whether any such connection did or did not exist, we might legitimately explain the similarity on the basis of convergence as well as by diffusion from one to the other. However, we are here dealing with only two specific traits. Obviously, two traits are not very representative of a whole culture and, as I have pointed out above, in the statistical method we are concerned primarily with culture wholes. To say anything about the similarity or dissimilarity of the culture wholes of these three areas, or of any other areas, the traits with which we deal must be representative of the whole culture of each area. It is manifestly impossible to deal with every single element in a culture so we are forced to use only a workable number or sample of traits. This sample however must truly reflect the whole culture from which it is drawn. To be reasonably certain that a sample of traits from any culture is really representative of that culture, it is necessary to observe two rules of equal importance. First, the sample should include as many traits as possible. It is far better to have too many traits even at the cost of unwieldiness than to have too few. Secondly, the traits must be chosen at random in order that all phases of the culture may be included in the sample. For example, if most of the traits were taken from the field of religion and only a few from other phases of culture, the resulting sample would obviously not be representative of the whole culture; it would be biased on the side of religion. Even a conscious effort to select a representative sample of traits will not prove satisfactory because subjective factors such as individual preferences, distastes, etc., will unconsciously influence the choice. The only way to overcome such unconscious biasing of the sample is to choose at random a sufficient number (the larger the better within workable

limits¹ of specific¹ traits from the total mass of specific traits constituting the whole culture. Given such a sample, the results of statistical treatment of this sample may be understood to apply to the whole culture with practically as much validity as would be the case if every single trait in that culture had been available for statistical operations.

Referring back now to areas O and P, let us assume that instead of only 2 traits we have 500 and that these 500 traits truly represent the cultures of these areas. Let us further suppose that 300 of these traits are found in both O and P and that we know, by statistical method, that the probability of this distribution occurring by chance is very small. We have therefore demonstrated that areas O and P have a good deal of their cultures in common. In other words, there is a high positive correlation between the two areas. This is as far as any statistical method will take us. The procedure from this point on is a question of the interpretation of the demonstrated correlation.

There are two recognized ways of explaining similarities in cultures: they may be explained on the basis of parallel development and convergence or they may be accounted for by assuming a historical connection between the cultures in question, i.e., diffusion from one to the other. In the case of areas O and P, as long as we are dealing with only 2 similar traits, either of these explanations is plausible. However, such a small number of traits is by no means representative of the cultures in question, so any inference regarding the presence or absence of connection between these cultures would be quite unjustified. But when we deal with 500 traits which supposedly do fairly represent the two culture wholes, when it is shown that 300 of these traits are present in both O and P, and that a high positive correlation exists between these two areas, then there is only one sensible explanation of this similarity. The absurdity of supposing that these 300 traits developed independently in both areas needs no demonstration, whereas the plausibility of this common occurrence

¹ "Specific traits" i.e., traits reduced to their simplest elements. See discussion of the nature of "specific" traits on pages 301-303.

being due to historical connection between the two areas is so obvious that any quarrel with it can only be regarded as mere dialectics. Of course, in the absence of any other information, it is impossible to say in what direction the diffusion took place, but ordinarily the ethnographer dealing with such a set of facts will possess corollary evidence which will enable him to form shrewd judgments as to which area acted the part of the borrower and which the lender.

It is not maintained that, in the case of a positive correlation between two or more sub-areas, absolutely all the common traits owe their similarity to a common source. It is logically possible that a few of the common elements may be independent in origin, but this does not materially affect our conclusion of historical connection. It is surely taxing logic to the utmost to assume that all the common occurrences are due to independent origin when it is an ethnographical maxim that by far the greatest proportion of culture similarities trace from a common source. Thus, when we deal with culture wholes and get positive correlations between them, the most logical interpretation is that of historical connection between the sub-areas concerned. We should not be justified in saying that every common element in those areas is to be accounted for on the basis of diffusion from one to the others, for a few of those common traits may be really independent. We can say, however, that generally speaking, the culture wholes of these particular sub-areas are historically connected, that the culture of one has considerably determined the culture of the other, and that the burden of proof for the independent origin of any trait common to them rests upon those who are dissatisfied with our interpretation.

Conversely, when a negative correlation has been shown to exist between certain sub-areas this does not necessarily mean that these sub-areas have never influenced each other in any particular, unless they have absolutely nothing in common. Actually, this total lack of common traits does not occur. However, if a negative correlation exists it is quite certain that the number of common features is small. Such as exist may be accounted for on the basis of convergence, in which case the

negative correlation will imply complete lack of historical connection. It is quite conceivable however that certain of these few common traits have diffused from one sub-area to another but so rarely that the correlation between those sub-areas has not been affected, still remaining negative. The determination of such particular points will depend upon corollary lines of evidence having nothing to do with statistics, i.e., records of migrations, etc. Our method by itself is not capable of clearing up such particulars but is for use as a means of obtaining more objective results from which inferences concerning the general dynamics of cultures may be drawn. It applies to the specific culture wholes and not to particular traits in those cultures. Thus, while a negative correlation between certain sub-areas does not completely rule out all historical connection between them, it does indicate that such connection, if it ever existed, was of little importance in determining the culture growth and change in those sub-areas. In other words, it shows that even if certain traits have diffused from one sub-area to others, such diffusion has had little effect as a determinant of the respective cultures.

In our previous paper it was our claim that, given a representative sample of the cultures involved, our statistical method would objectively show up the similarities and dissimilarities, i.e., the positive and negative correlations between the culture wholes. The interpretation of these results and, where diffusion is involved, the determination of the direction of the diffusion, is a matter which is up to the ethnographer handling the data and resolves itself into a question of intelligent coordination of the facts as opposed to sterile rules of formal logic.

We may now turn to a discussion of generic as opposed to specific traits, and the weighting of data. Wallis feels that a defect of our method is that it treats all traits alike whereas he would like to give more weight to what he calls the generic traits. This is probably desirable but there is unfortunately no objective criterion for selecting the traits to be thus favored, and if the weighting be done subjectively a source of considerable error is introduced. However, there does exist a means by which the question of weighting certain parts of the sample may be at least

partially satisfied. It has to do with the problem of generic versus specific traits, and it will be necessary to discuss this point before proceeding to the matter of actual weighting.

In his paper Wallis is not at all clear on the question of generic traits, but by using a case of his it may be possible to clarify the matter. He cites the custom of removing the skins of animals by inflation as an example of a generic trait. However, it is conceivable that this custom is simply a part of the still more generic trait of skinning animals. Furthermore, the inflation method of skinning is itself composed of simpler traits. In other words, it is a complex trait which in turn may be part of a still larger trait complex. Thus it will be seen that unless we are dealing with the simplest units, the question of what is or is not generic is quite relative. The use of generic traits as such, then, is not to be recommended, and in the statistical method it is essential for all traits to be reduced to their simplest elements. That is to say, the sample must consist of *specific* traits only.

It is in this connection that the problem of weighting finds a solution. It is admitted that generic traits are of more weight than specific traits only if we define generic traits as complex traits which are composed of simpler or specific elements. Now it will be seen that such traits will be automatically weighted when broken up into their specific units as they must be when the statistical method is applied.

As an example of a generic trait let us take that method of disposing of the dead called tree-burial. It may be noted in passing that the relativity as to what is or is not generic is again illustrated by the fact that tree-burial is itself a part of the still more generic trait of disposal of the dead by desiccation.

When we examine tree-burial closely we find that it embodies several specific elements as follows:

- Tree-burial (generic)
 - Body flexed
 - Body extended
 - Body wrapped
 - Body embalmed
 - Body guarded
 - Food placed near body
 - Direction in which body faces
 - Etc.

This list of specific traits embodied in the generic trait of tree-burial might be further extended, but enough has been said to illustrate how such generic traits may be automatically weighted when broken up into their simplest units. The more complex the generic trait, the greater will be the number of its specific elements, each of which counts as much as any other, and tree-burial with say seven specific units will be weighted more than some other complex trait which contains, say, only three specific elements.

Quite aside from statistics, the importance of this reduction to simplest units may be further stressed. Wallis argues that the presence of a generic trait in a limited number of groups having a similar culture pattern is stronger evidence of culture contacts between those two groups than is the presence of specific elements of the generic trait. In this Wallis runs contrary to accepted ethnological method, for most of us would agree that similarity in details of a complex trait occurring in two areas is much better evidence of connection than the mere presence of the complex trait. Further, dissimilarity in details is generally regarded as indicative of a lack of connection and as furnishing some evidence of an independent origin of the complex trait. Let us refer back to tree-burial and assume that it occurs in two sub-areas of a large culture area. If the specific elements of tree-burial are present in both sub-areas, the evidence for historical connection between them becomes so strong as to amount to practical certainty, whereas if the specific elements are quite dissimilar in the two regions, then such connection becomes extremely problematical even though the two sub-areas agree in the possession of the generic trait.

In his specific criticism of our statistics, Wallis uses the list of traits given in our paper, applying to it a percentage device of his own and by means of it comes to certain ethnographical conclusions which differ somewhat from ours. His method of utilizing our list of traits however ignores some of them for reasons which are apparent in the following quotation:

Since the distribution of culture can be inferred only from the presence of traits and not from their absence, we propose to disregard the occurrence

of absences and to treat the distribution of traits which are present in two and less than six of the island groups.⁵

This method ignores traits which are present in only one island group and as such traits contribute directly to the individuality of their respective groups it is apparent that the culture picture drawn without them will be considerably distorted. Not even a percentage method is necessary to show almost any kind of culture relation when only traits of common occurrence are selected and all others arbitrarily ruled out.

Wallis draws attention several times in his paper to the fact that we deal with the mutual absences of traits in any pair of sub-areas and this he considers a fatal defect of our method. The appellation of this as a flaw however rests upon Wallis' failure to perceive clearly the implications involved in the fact that we are dealing with particular sub-areas within a larger area of comparatively homogeneous culture. As we pointed out in our previous paper,

No one doubts that the island groups considered here belong to that general type of culture called Polynesian. What our method does is to show the little mountain peaks of agreements and disagreements rising above the level plain of general Polynesian culture; in other words, it shows the special relationships within the area."

This point must be borne clearly in mind for our method is only applicable to such special relationships *within* a culture area. When Wallis cites the Hopi Pueblo culture and that of New York City as examples to show that the common absence of traits in these two regions does not indicate any kind of relationship, he is perfectly correct. The point is obvious but irrelevant, as New York City and the Hopi Pueblo belong to quite different cultures and we never advocated the drawing of any inferences as to connection, based on such a case. Common absence of traits is only significant where the sub-areas involved belong to the same type-culture. Thus, if many traits which are found throughout the rest of Polynesia are not found in Samoa and Tonga, this fact is surely significant, as it indicates that something is operative

⁵ W. D. Wallis, 101.

⁶ Clements, Schenck, and Brown, 593.

in these two islands which prevents such traits from occurring there. Considering their geographical proximity, it is a legitimate inference that this common lack of many Polynesian traits indicates some sort of relationship between these islands. However, if the general culture of Samoa and Tonga were not part of the typical Polynesian culture, this shared absence of traits would not be significant.

As this point is vital to our method, I must risk tediousness by taking a further example. Let us take two tribes from quite different culture areas, the Arunta and the Crow. Common absence of many traits here means nothing as to the presence or lack of relationship, because the type-cultures of Australia and the Plains are so divergent. If however the Arunta and some other tribe possessing the same type-culture, say the Kariera, agree in lacking many traits which are found over the rest of Australia, then the inference of some sort of connection between them is justified. Similarly with the Crow and any other typically Plains tribe, such as the Cheyenne or the Blackfoot. Here again common absence of many traits shared by other Plains tribes indicates relationship, the exact nature of which can only be determined by further analysis of the cultures involved.

If this argument be admitted, as I think it must be, then Wallis' chief objection to our method falls to the ground. Furthermore, as his own percentage method fails to consider these mutual absences, it is therefore inadequate. Our main objection to his method is based on these grounds but we believe that they are sufficient.

A somewhat minor but nevertheless important further criticism of his method that may be urged, has to do with his utilization of traits marked "no data" in the list. Thus, there are many traits in Linton's list which are either definitely present or absent in certain of the sub-areas but for others there are no data. For example, according to the data, the paddle club is present in Marquesas and Society, it is definitely absent in Hawaii, Samoa, and Tonga, but there are no data on New Zealand. Therefore, in comparing New Zealand with any of the other sub-areas the paddle club should be left out, as we do not definitely know

whether it exists there or not. Wallis however, in adding up the number of occurrences for the various pairs of island groups, includes such traits, and this accounts for the discrepancy between his totals and ours. As a case in point, when dealing with New Zealand-Society we gave 73 traits present in New Zealand but absent in Society, and 56 traits present in Society but absent in New Zealand. Wallis gives 75 traits for New Zealand and 67 for Society, a discrepancy of 2 in one case and 11 in the other. Thus, in this particular case, Wallis includes 13 traits which should not be used in the comparison because of the lack of definite information as to the presence or absence of these traits in one or the other sub-area. For this reason, differences between our totals and his will be found for every one of the fifteen pairs of islands as there are a considerable number of traits where no data exist for at least one of the sub-areas. The inclusion of such traits in the comparisons has a direct effect on the magnitude of Wallis' percentages and, while in most cases these are not seriously⁷ altered, the use of such traits must nevertheless be regarded as partaking of the nature of a blunder.

Furthermore, Wallis has no means of ascertaining the reliability of his percentages after they have been calculated. They are significant only at the extremes. Thus, if between two sub-areas, A and B, we find that 90% of the traits of A are found in B, and that 92% of B traits also occur in A, then connection between them is obviously assured. Conversely, if these percentages turn out to be only 5% and 7% respectively, the conclusion of only slight mutual influence is justified. As soon however as the percentages begin to draw in from these extremes, when, for example, they respectively become 49% and 50%, whatever significance they may possess becomes extraordinarily vague.

Let us now turn to a brief discussion of the value called P in our method. It is perhaps unfortunate that we used the term "chance" in our explanation of this value, because while strictly speaking P is based on probability or chance, this term popularly

⁷ They are not *seriously* altered because, except at the extremes, their significance is so vague that they may fluctuate within a relatively wide range without changing any meaning they may possess.

has such a connotation of mystery and "luck" that the non-statistical reader may become prejudiced against the method. P is actually an expression of correlation between what Karl Pearson called "broad categories." In our method, these categories are the presence or absence of culture traits in any pair of sub-areas which it is wished to compare. Thus, for us P becomes an expression of correlation between two sub-areas. The value of P varies from zero to unity, and as it approaches unity (increases in magnitude) the degree of correlation decreases. The lower the P , the greater the degree of correlation, whether negative or positive. Thus, a high P does not indicate a definite lack of relationship between two sub-areas. It simply means that there is too much uncertainty about the distribution of the particular data to say definitely one way or another. P is an expression of the *degree* of correlation and the positive or negative character of this correlation is to be discovered in the data themselves, that is, by the excess of agreements or disagreements between the two sub-areas concerned. Thus, definite lack of relationship is indicated by a large excess of disagreements together with a low value for P .

This point may be illustrated concretely by two examples from our original paper. Referring to table II in that paper, we see that New Zealand and Tonga have a considerable excess of disagreements. This indicates that the correlation is negative but does not show the amount of such correlation. Upon calculation, the P for this island pair was found to be quite low (.000625). This indicates that the correlation is high and we are therefore justified in concluding, on the basis of this high negative correlation, that the cultures of New Zealand and Tonga have had very slight influence on each other. On the other hand, New Zealand and Society also have an excess of disagreements, which indicates a negative character for the correlation. But the P for this pair is very large (.992051). This shows that the actual amount of correlation here is very slight. In other words, it means that there is too much uncertainty about the distribution of the data in this particular case to enable us to come to any definite conclusion as to connection or lack of connection between these two sub-areas.

As a matter of fact, I have recently learned from Mr. H. D. Skinner, that the connection between New Zealand and Society, in certain phases of culture, is actually quite close. This fact in no wise operates against our method, for no statistical procedure can go beyond the data with which it deals, and on the basis of Linton's data our statement concerning these two island groups is justified. Moreover, as we were concerned primarily with method, we cannot feel that errors in our temporary ethnographical conclusions matter particularly, as long as they arose directly from the data. No censure attaches to Linton on this score, of course, for he had no idea of the particular use to which his information would be put and no doubt it was perfectly satisfactory for the purpose for which he collected it.

As a convenience, the main points involved in the application of this statistical method are summarized below.

1. As described, this particular method is for use only in showing the existence or non-existence of special relationships between sub-areas within an area of fairly homogeneous culture.

2. The traits utilized must constitute a representative sample of the culture wholes in each of the sub-areas which are to be studied. All phases of culture should be equally represented for each sub-area.

3. All traits must be reduced to simplest units. By this method complex or generic traits are automatically weighted.

4. The statistical method will only show positive or negative correlations and the degree of such correlations. It cannot explain them unaided. However, the only reasonable explanation of high positive correlations is historical connection, as we are dealing with culture wholes and not merely with a few trait identities due, perhaps, to convergence.

In closing, it may be well to add a word of reassurance to those who feel that statistics are essentially treacherous. Since Tylor's brilliant attempt to use them terminated in failure, anthropologists have had little confidence in their application to culture. Wallis likens our attempt to that of Tylor when he states what anyone having a bowing acquaintance with statistics knows:

namely, that statistics themselves cannot show the direction of change, cannot indicate the route of diffusion. No such claim is made for them, but it is maintained that statistics can show in an objective way that certain sub-areas are culturally similar or dissimilar and, further, that they will give more than an inkling of the degree of such identity or divergence. The matter of the interpretation of such demonstrated correlations has been fully discussed above and need not be gone into again here.

As for Tylor's method, he was concerned principally with causality. That is to say, he was attempting to show that certain traits were causally connected with other traits, using a statistical method to support his idea that at a certain stage of culture certain traits spontaneously evolved from others. Without a knowledge of the extent to which diffusion had taken place, Tylor could not know whether, in any particular area, he was dealing with an independent trait or simply with the same organic trait which had spread out from its point of origin to the different regions where he encountered it. Such knowledge was essential for the validity of Tylor's method and the fact that he was unable to discriminate successfully between his trait occurrences on this basis was responsible for his failure.

Boas has recently said that

The fundamental difficulty with statistics in ethnography is our lack of knowledge of historical connection. In order to make a statistical method a success it is essential that the phenomena counted must be independent of one another. If a number of them go back to the same historical sources they cannot be considered as separate units.⁵

This statement is eminently true of all such statistical inquiries as that of Tylor, but it does not apply to our method as we are not concerned with causality in Tylor's sense. We are concerned only with trait occurrences no matter whether they be independent or derived from a common source. This fact alone is sufficient to show that the objections usually urged against statistics in ethnography do not hold for the form here advocated. In our

⁵ Franz Boas, in Wm. F. Ogburn and A. A. Goldenweiser (editors), *The Social Sciences*, 120, 1927.

method we are occupied in the investigation (within an area possessing the same type-culture) of the influence of culture wholes upon each other, with ascertaining to what extent the culture of one sub-area has determined that of other sub-areas. If our method can do this and do it in a more objective way than has heretofore been possible, it will have justified itself.

UNIVERSITY OF CALIFORNIA,
BERKELEY, CALIFORNIA

THE TRUE STORY OF A LITTLE STONE IMAGE

BY FRANCES DENSMORE

TWO or three years ago in a museum, I was shown a little figure, carved from dark gray slate, which had been collected among the Makah on Cape Flattery. As I had recorded the songs of these Indians, the question was asked, "Did you see any carvings like this among them?" I replied that the Makah, so far as I had been able to discover, did not carve slate but obtained such articles from tribes living on Vancouver island. The incident closed with a feeling that I had overlooked something important among the Makah. A photograph of the figurine was kindly provided, however, so that I might make inquiry when I returned to this tribe.

The figurine is about 11 inches high and represents a person with upturned face, holding something in its arms, pressed against the abdomen. The expression on the face is one of deep sadness. On top of the head is a little broken place in the stone. The head and upper torso are large in proportion to the lower part of the body and limbs, and the figure is in a kneeling position. The object clasped in its arms appears to be a small animal. The face is strong but not masculine, indeed the figure has a peculiar effect of being sexless, while the tragedy of the expression is emphasized by the exaggerated size of the head.

In the summer of 1926 I returned to the home of the Makah on Cape Flattery taking the photograph. Soon after my arrival I betook myself, picture in hand, to an old man named Young Doctor, whom I knew to be reliable on everything connected with Makah customs.

Young Doctor took the photograph in his hand, smiled and said (through the interpreter), "That is one of Santiano's fancy sinkers. The old fellow was handy at carving and I remember this one. Santiano had pounded a nail in the top of the head to fasten his fishline and it broke off, leaving a little rough place. Santiano had several fancy sinkers like that."

On a previous visit I had heard of Santiano. He and Young Doctor were medicine-men together, in the old days. Young Doctor, who is now about 70 years of age, recorded many of the songs that Santiano used in treating the sick and, speaking without hesitation, told of Santiano's method of treating the sick and related anecdotes concerning him. He said there was a place at Warmhouse where "Santiano got the rocks that he carved." The little animal held in this figure's arms looked, he said, "like a baby sea-lion." But he expressed this simply as an opinion.

Desiring to check this information I consulted Albert Irving, an old Makah whaler, who also had shown himself to be a reliable informant. "Mr. Irving," said I, "do you remember whether Santiano had a sinker shaped like a person?" He replied, in English, that he did not remember seeing such a sinker but that "Santiano had a *tumanos* for carving, and carved many things."

If only we could consult living men concerning the stone objects in our museums, how many problems might be solved! Stone carving was not a lost art among the Makah, as might appear, but there was one man, long ago, who "had a *tumanos* for carving." If only he were here to tell us how he obtained the help of this *tumanos*!

Where did the *tumanos* go when they buried the body of Santiano? The tide rises and falls in front of the isolated village, and the fog comes over the mountain, with trailing tatters that cling to the cedar trees. It seems that the *tumanos* of Santiano never came back.

Why must men today work so hard to learn the carving of a tragic, uplifted face and yet fail to catch the strange quality that lies in this bit of dark slate? The Indian gained the ability in some mysterious experience fraught no doubt with fear and suffering. A *tumanos* does not come to happy people. It only comes when, in the words of an Indian, "a man feels so small that he does not care whether he lives or dies." If the balance swings to life, the *tumanos* comes and offers its companionship and help as the man's reward,—or shall we say his consolation? Deep indeed is the thought of an Indian and pitifully little do we understand it. The little image still holds the largest part of its secret,—holds it forever.

Continuing the conversation, Young Doctor said he thought this "fancy sinker" represented a creature that lives in the water, has very long hair, and is neither a man nor woman. The interpreter translated this as "something like a mermaid." Young Doctor was conservative and said he had never come close enough to one of these creatures to be sure what it looked like. He said however that he had the following strange experience when he was a young man. He and his mother were fishing for halibut out at the cape. He had a bite, pulled up his line and was ready to club the halibut when he saw what looked like a tiny baby. He was so frightened that he fainted and his mother began to paddle home. While he was still unconscious his mother built a fire, put some sort of seaweed on it and held him over the blaze, so that he inhaled the smoke. This was effective, as he revived and vomited an oily substance. He told his mother to go and see what was on his hook and she found a few strands of very long hair. These he used on his fishline and got a great many fish by its help. When the run of spring salmon was on, he used this hair on his hook and caught more than anyone else.

He said that once a man saw one of these creatures sitting on a rock at the edge of the water line. He crept up, took a long stick and twisted off a little of its long hair. It was believed that whoever did this would become wealthy.

All this is interesting, with its mixture of the traditions of two races and many parts of the world, but it does not explain the tragedy on the face of the little stone image, nor why the *tumanos* inspired Santiano to carve the little animal in its arms. Mysterious still, with a mystery as deep as the sea or the heart of an Indian, the little figurine will take its place in the collections of the museum. A label will tell its origin, and we can understand that the little broken place on top of the head is where the fishline was fastened, but only Santiano knew what it represented,—and Santiano is dead.

RED WING,
MINNESOTA

A PECULIAR TYPE OF STONE IMPLEMENT

By JULIAN H. STEWARD

AMONG archaeological finds in the Columbia valley in the region of The Dalles have been a large number of chipped stone artifacts of a peculiar type which have been heretofore either ignored or merely called "scrapers." It is my purpose to question the propriety of such designation of these artifacts and to suggest a possible new and totally different use.

During work in the summer of 1926 made possible by the generosity of Mr. Henry J. Biddle of Vancouver, Washington, a large number of these were found in the region of the Deschutes river. It was Mr. Biddle's suggestion at the beginning of the work that these were not scrapers but missiles to be thrown by hand. A subsequent find seemed to lend considerable plausibility to this suggestion.

At the upper end of Miller's island in the Columbia river just opposite the mouth of the Deschutes river, is a sand cliff containing several levels of ancient camp sites. This has been weathered away by wind action depositing a large number of artifacts of various sorts just back of the river beach. Among these were found four hundred and ten implements of this peculiar "scraper" type, all of which were gathered within a radius of thirty or forty feet, although others were found scattered over the island and mainland. They are made from flat, round or oval, water-worn stones of granite, basalt, quartzite or other hard material, and are roughly chipped on one side around the entire edge except for a small area at one end where, in ninety percent of the specimens, the original smooth surface remains untouched. The long diameter averages between three and four inches and the short diameter from two to two and a half inches. Text figure 1 shows the typical form. (See also plate 11 *a-o*.)

Several considerations lead us to believe that these were not intended as scrapers but were probably "throwing stones." In the first place, as will be seen from a comparison of the plate



a-j, typical "throwing stones." *k-o*, approximating typical "throwing stones."
u and *v*, scrapers chipped on one edge. *w*, flint scraper. *x*, polished scraper. *y*,
 similar to *x* but unpolished.

figures, they are quite different from several other types of artifacts which seem to have been eminently suitable for scraping. For, whereas the latter are very thin and are chipped to a fine, regular edge, these are heavy and irregularly worked. Figures *u* to *y* show several types of true scrapers from Miller's island. Figures *u* and *v* are somewhat thinner than the "throwing stones" and are chipped evenly and on one edge only: figure *w* is a type of flint scraper and was probably hafted; figure *x* has been ground and polished to a fine cutting edge which runs around the entire

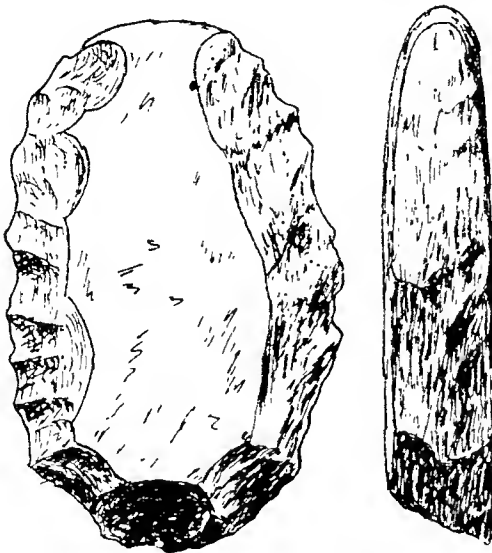


Fig. 1. A typical "throwing stone." Natural size.

rim; while *y* is similar in form to *x* but has not been polished. Furthermore, far more stones of this type were found in this restricted area than could ever have been used by a community of this size, however much scraping they may have had to do.

As these are of so definite a type and so numerous, another use must be found, and that of "throwing stones" seems most reasonable. The size is exactly right to hold in the hand, and the untouched end serves as an excellent hold for the forefinger. The ten percent which differ from the standard type only in that they

are chipped around the entire edge (figures *p* to *D* do not, it seems to me, weaken the proposition. For these, too, are unsuitable for scraping, yet the loss of the smooth end for a fingerhold does not make them impossible for throwing. Furthermore, it is probable that among so large a number of artifacts, a small percentage would bear such an imperfection (if it may be called such). The weight, also, is sufficiently great to make the missile effective without being too heavy to throw, while the jagged edge would undoubtedly be more effective than an evenly chipped one. The large number occurring in a small area also lends weight to our conjecture. For to use stones as weapons, or perhaps for hunting small game, one should have a large supply at hand. Or possibly they had been accumulated in readiness for an attack. The large number produced may also help account for the crudeness of workmanship.

While there is no record of such use of these stones, and while the living Indians call them "scrapers," I offer this suggestion of a new use, not as a dogmatic assertion but as a reasonable conjecture. Whenever a chipped stone implement of a puzzling character is found, archaeologists are too ready to say "scraper." The probability is very great that these implements are not scrapers, but were used as above described.

UNIVERSITY OF CALIFORNIA,
BERKELEY, CALIFORNIA

BOOK REVIEWS

METHODS AND PRINCIPLES

The Racial Basis of Civilization; a Critique of the Nordic Doctrine.

FRANK H. HANKINS. New York: Alfred A. Knopf, 1926. xi, 384 pp.

This is undoubtedly one of the sanest treatises extant on the vexed subject indicated in the title. The author, who is professor of sociology at Smith College, takes a stand intermediate between that of the race theorists and the "race-slumpers." He believes in eugenics, also in the capacity but not the unique value of the Nordic race, in the definite inferiority of the Negroids, but not of the Alpines and Mediterraneans, and he insists on the overlapping of living human groups, even including the Negroids. His theoretical position in some respects recalls Professor Dixon's, in others the late Dr. Schallmayer's. As to practical applications, immigration might be regulated by a general test irrespective of race were it not for irrational *sociological* considerations.

Were it not for these traditional popular prejudices, America could do no better than to make itself a world asylum for persons of superior quality regardless of race or color (p. ix).

Professor Hankins is not merely a critical expounder of widespread theories but gives a considerable mass of concrete information, so much so that certain omissions become obtrusive. Why, for example, is there such scant reference to Eugen Fischer's outstanding work on race mixture? And why is nothing at all said about the result of Lapp-Norwegian unions reported by Halldan Bryn?

The only serious criticism that can and must be leveled against the book is the author's inability to discriminate between a dogmatic denial of racial differences and an attitude of scientific skepticism. This leads him into unnecessary opposition to that curious Boas school which has succeeded in conveying the impression that it believes the races equal in inherited capacities (p. 323).

while its leader, as Professor Hankins shows, holds the opposite view, though of course not in an extreme form. Probably no serious member of the group would quarrel with the author's declaration that

inter-racial comparisons that are entirely fair and absolutely conclusive do not yet exist (p. 326).

What, then, is all the row about? Why while "denying the extravagant claims of the Nordicists," does the author feel prompted to "deny the equally perverse and doctrinaire contentions of the race egalitarians" (p. ix)? Why does he fall foul of the cultural anthropologists

who assert that the races are organically equal or substantially so and that all cultural differences of peoples are to be explained by differences in cultural history and contacts?

It seems improbable that the three writers quoted—Professors Kroeber, Ogburn, and Goldenweiser—are egalitarians in the way Professor Hankins imagines. Like himself, they are undoubtedly very critical of the alleged *proofs* of differences. Professor Hankins is indeed aware of some similarity in approach, but expresses his ambivalence as follows:

There are many features of this theory which we warmly approve, but when it makes the bold assumption that racial differences in cultural achievement are adequately explained by differences in cultural contacts and history we feel that it errs as much in one direction as Gobineau and Grant do in the other (p. 368).

This is inverting the problem as it appears to the students criticised. The anthropologist notes that cultures vary in space and time; he tries to find the determinants of the changes, or at least to eliminate impossible causes. There is a chasm between Japanese civilization of today and of a hundred years ago. Is it a "bold assumption" or a simple fact that the difference resulted from no mutation in innate Japanese psychology but from a well-established cultural contact? Shall the differences between Elizabethanism and Puritanism, between Puritanism and the Restoration, between Victorian and Georgian England be correlated with fluctuations in the racial strains? If so, what are they? Or, to take a major difference: Why did the Cro-Magnons and their contemporaries never rise beyond a Paleolithic level when their brain capacity is generally recognized as greatly superior to the modern European average? Professor Hankins seems to believe firmly in brain size as a criterion of intelligence (p. 308 sq.). Let us, then, put the argument on this basis. If the inferiority of the Australian to the French culture is due to the relative brain capacities of 1340 cc. and 1550 cc. why is not a cor-

responding superiority of the Chancelade man over the French indicated by *his* capacity of 1710 cc.? The anthropologist rarely has to deal with cultural differences so enormous as those between the Upper Paleolithic and our present industrial civilization. If an organic equipment at least equal to ours is consistent with a Stone Age culture, then—whether racial differences are real or imaginary, great or small—they cannot “adequately explain” the observed phenomena. If *they* cannot explain them, we must fall back upon factors of another category, and these may reasonably be lumped together as “cultural.” They do not always explain *adequately*, but at least relying upon them does not involve the absurdity of deriving a variable (Culture) from a constant (Race); nor the ridiculous proposition that a higher innate equipment is correlated with an inferior culture. About all this there is not the slightest boldness, nothing but the sober application of the canon of varying concomitants. It is a bit hard when this exposes one to the charge of erring as much as a fantastic genius like Gobineau or an ignorant if not deliberately dishonest propagandist like Mr. Grant, whose “biological and anthropological charlatanry” (p. 187) the author himself exposes.

If so much more space has been given to the elucidation of this simple point than to an appreciation of Professor Hanks’ luminous treatise, it is in the hope of promoting a better understanding between him and the cultural anthropologists.

ROBERT H. LOWIE

The Origin of the State. ROBERT H. LOWIE. New York: Harcourt, Brace and Company, 1927.

For the past sixty years specialists in government have almost invariably followed Sir Henry Maine in assuming that a clean-cut historical distinction could be made between the pre-state period when men were held together for governmental purposes by the tie of blood, and the state period when they evolved the principle of local contiguity. The accumulation of ethnological data in the supervening years has served to emphasize the similarities rather than the divergencies of life among “primitive” and “civilized,” with the result that any theory which postulates sharp differences and stages is under suspicion. So overpowering has been the prestige of Maine and so absorbed has been the attention of professional anthropologists, that the ineptitude of the kin-contiguity theory has never been seriously exposed. Social science is to be congratulated that Professor Lowie has found it worth his while to go forth to do battle.

Professor Lowie believes that primitive peoples are organized in a way that warrants our speaking of their governmental units as states, or at least as rudimentary states. The simplest peoples known (such as the Yurok, Angami Naga, and the Ifugao) have a sense of belonging to a territorial social unit larger than a kin group, and act to defend the order with which this sentiment is bound up. Thus among the Ifugao the thief from another village is killed outright, the thief from a kin group in the same village is merely fined. In the case of adultery involving the member of a kin group resident in the village, it is recognized that he owes an obligation of some kind to the kin which has been wronged.

Evidence of this kind is amassed to substantiate the thesis that a more-than-kin territorial tie exists, and then Lowie storms the whole fortress of kinship theory. He argues that the conception of kinship as something independent of contiguity is false, cogently contending that the bond of relationship when defined in sociological rather than biological terms is itself in no small measure a derivative of local contiguity.

Reviewing the data respecting associations, Lowie modifies his earlier conclusion that they tended to build up the state by welding bonds of unity across kin lines, and says that they are not inherently either centralizing or disruptive agencies, the crucial factor being the correlated factors of integration. As often as not, among the Crow for instance, the rivalry of associations may endanger the unity of the state.

Franz Oppenheimer's extension of the Marxian interpretation of the state is given the attention which it richly deserves. Oppenheimer holds that the state is a form of exploitation of the mass of the community for the benefit of a ruling few. It came into existence when pastoral nomads conquered agrarian peoples and required them to turn over part of the products of their labor to the conquerors. Lowie's objections may be succinctly put thus: There are cases where the subject classes of the community suffer no economic exploitation; there is evidence that the pastoral peoples were themselves organized in states before they conquered agrarians; rational exploitation is alien to the primitive attitude of mind, mixed as it is with ideological conceptions of a contradictory sort. Even when considered as a theory of caste rather than a theory of the state, Oppenheimer has failed to prove that castes only come into being through conquest.

When he considers the factors which affect the size of the state, Lowie shows that the enlargement of the state cannot be attributed to military spirit solely, for not alone in the case of the Polynesians or the Plains Indians were major political organizations lacking though war was common. The decisive factor is organizing capacity, which may express itself in the consolidation of conquests or in voluntary unification. The only cited example of peaceable establishment of a large-scale organization is the legendary one of the Iroquois under Hiawatha.

It is perhaps ungracious for a student of government to cavil at the limitations of an essay which is so stuffed with weighty matter as this one, but there are at least two points upon which further elaboration would be especially welcome. Lowie says that organizing capacity is the essential factor in state growth, but he throws out no systematic hints as to the types of traits which predispose a culture to develop the adaptations which are lumped together under this expression. Although Hobhouse, Wheeler and Ginsberg showed a correlation between complexity of material culture and complexity of political organization, this carries us but a little way.

Something in suggestive quality would have been gained had a section been devoted to an appraisal of the function of political organization in relation to the rest of culture. The traditional students of government are wedded to a set of rather clumsy rationalizations which blur their vision of the rôle of the state in the matrix where it functions. It is the private prejudice of the reviewer that the most distinctive contribution of anthropology to political science will consist in stirring up the governmental specialist to a new slant on the significance of the social patterns with which he is too often content to deal in a spirit of splendid, though sterile, isolation.

After all, my complaint against Professor Lowie is nothing more serious than that he evidently has other things of no less importance to do than spend a lifetime on the details of the field which he has so brilliantly mapped.

HAROLD D. LASSWELL

UNIVERSITY OF CHICAGO

Primitive Man, His Essential Quest. JOHN MURPHY, D. Litt. 341 pp.
Oxford University Press, American Branch, New York, 1927.
\$5.00.

Why was this remarkable work delayed until the twentieth century? Its competitors are Lord Monboddo and Rousseau, or the writers of some other romantic period of the past when thought-forms stalked through the pages of imaginative writers and were called "the savage." It has in it none of the modernity of a Lucretius. The argument is about as follows: Prehistoric man has a deficiency of fore-brain, in which the higher integrations are located, and this is true likewise of the contemporary savage. The civilized man has more fore-brain, and hence is more rational and coordinative. From the skull of prehistoric man one can infer his brain, and from the inferred brain one derives his psychology.

We can bring to bear upon each small relic of his anatomy or his work our general knowledge of the bodily and mental structure of man, both savage and civilized, as he is, and thus form a fair idea of what he was like and even of what he thought (p. 11).

The first source of data for a psychology of the primitive mind is Palaeontology (*ib.*).

If palaeontology is a source for the first essentials of the psychology of primitive man this book may be unreservedly recommended. It is itself a valuable source.

WILSON D. WALLIS

Myth in Primitive Psychology. BRONISLAW MALINOWSKI. 94 pp. New York: Norton and Co. 1926. \$1.00

We are accustomed to Dr. Malinowski's fine scorn of the historical method in Anthropology. It is therefore not a surprise to be introduced to this very excellent and compact analysis of myth by the usual sally of witty *railleries à l'adresse* of those who would see in every myth a sun symbolisation, a symbolisation of nature, or any of the "other symbolic personified rhapsodies." The surprise comes rather when we find Dr. Malinowski indulging in as good a piece of historical methodology as the most ardent supporters of the culture-historical school might wish. Certainly not one of them would object to Dr. Malinowski's oft-repeated exhortation that an expression of the phenomena of man's society ought never to be divorced from its context, i.e., from a vivid and sympathetic picture of the whole life of the people concerned. This is what we all aim to do, even though not all achieve the vivid and striking presentations of Dr. Malinowski. Thus in presenting the myths of a typical Melanesian culture, the author invites us to

float over in spirit to the shores of a Trobriand lagoon, and penetrate into the life of the natives, . . . see them at work, see them at play, and listen to their stories. Late in November the wet weather is setting in. There is little to do in the gardens, the fishing season is not in full swing as yet, overseas sailing looms ahead in the future while the festive mood still lingers after the harvest dancing and feasting. Sociability is in the air, time lies on their hands, while bad weather keeps them often at home. Let us step through the twilight of the approaching evening into one of their villages, and sit at the fireside, where the flickering light draws more and more people as the evening falls and the conversation brightens. Sooner or later a man will be asked to tell a story, for this is the season for fairy-tales. If he is a good reciter, he will soon provoke laughter, rejoinders, and interruptions, and his tale will develop into a regular performance.

Now this is the proper way to write anthropology: vivid, full of the smell of a gathering of natives, underlined with the details of their intimate life like the shadows and lights that give perspective. Every anthropologist would like of course to write like an artist, and see like an artist, but every anthropologist, like every true artist, knows full well that he must have a very clear conception of the separate elements that constitute in their amalgam the ensemble which we call life or culture. Every man in the street, or in the streetcars, or in the offices, has also a certain conception more or less vague but still felt, of the ensemble of any culture with which he is acquainted either personally or by the reading of books. Yet he would be unable to present his ideas and his musings on the subject in any clearness of form simply because he feels the thing as a whole and has never made it his business to isolate the elements in their separateness and consider them, study them, weigh them, and compare them as such. It seems to me that all that the culture-historical school claims to preconize in the field of methodology is the necessity for this double process: the previous anabolism of the elements of a given culture before proceeding to the katabolic reconstruction which will stand in our eyes as the final picture, a picture which represents something in our minds that we really know because we know its details. I cannot see why an element of culture should lose immediately all of its reality and import because it is envisaged separately and apart from the context of the whole of a given culture. On the contrary, I think it is a methodological necessity to generalise cultural elements in their very separateness, and to treat of marriage, social rank, hunting privileges, exchange of commodities, et cetera, *in general*, that is, as applying to all the cultures that we know and without considering any one of those cultures in particular. And

this is precisely what Dr. Malinowski has done in the present essay on *Myth in Primitive Psychology*. Truly, Dr. Malinowski will probably protest that what he objects to is the detailed study of restricted areas or culture complexes. What interests Dr. Malinowski is the whole of humanity, with its ambitions, its psychological processes, the general laws of its behavior and social intercourse. Yet he has made a study of Melanesian life, especially of certain restricted complexes of this area, with the very same attention to preciseness in detail that Boas, Kroeber, and Lowie have always recommended to their pupils. I confess that I find it difficult to see just where it is that Dr. Malinowski differs from their school, at least in his practice.

But to return to the book under review, Dr. Malinowski is especially to be congratulated for making a clear division of folk-lore into three classes: fairy-tale, legend, and myth proper. I do not know whether this is the first time that such a division has been made. Students of the subject better informed than I will probably know.¹ The author actually makes four divisions, but it is not clear to me how the "legend" differs from the "historical record" (cf. p. 19). "Fairytale" is of course the first step in the series. In the language of the Trobrianders, the restricted complex which Dr. Malinowski has studied intensively, these fairy-tales have a special name, *kukwanebu*. This is the stage² of the folk-tale in general all over the world. This is the stage of our own "trickster" and "Coyote" stories in archaic western America, and of the "lumberjack" tales in recent western America. The hall-mark of this kind of literature is the purely sensational character of the interest on the part of the auditors. The tale is told for its own sake, merely because it amuses and arouses interest, and is well told. For the second class of literature, namely historical literature, the Trobrianders also have a special name, *libwogwo*. Now whereas on page 19 the author was presumably subdividing that class into two, legends and historical records (besides the first, the "fairy-tale," which is expressly mentioned, and the last, the "true myth," which is not mentioned but which is implied), on page

¹ In private conversations my friend, Professor Arthur Brodeur, had already informed me some time ago of a very similar classification which he is preparing to present in a special study in connection with his own field of European mythology.

² By "stage" I mean here not at all an evolutionary step, organically, but rather a step in what Dr. Lowie so aptly calls "the principle of continuity and psychic unity." (The Origin of the State, p. 3).

26 a new subdivision appears, namely "historical accounts." It would have been interesting to hear more about the reasons for the differentiation, but the author only mentions that historical accounts are either directly witnessed by the narrator or at least vouched for by someone within living memory. In legends the continuity of testimony is broken but they fall within the range of things ordinarily experienced by the people. While hearsay tales are about different countries or ancient happenings of a time which falls outside the range of present day culture. This last class leads to the true myth, for which the Trobrianders also have a special name, *liliiu*.

What is, then, the essence of the true myth? Instead of indulging in the phantastic reconstructions of the theorists to whom he so objects, Dr. Malinowski posits his answer most excellently on a bare statement of observable facts.

The folk-tale is a seasonal performance and an act of sociability. The legend, provoked by contact with unusual reality, opens up past historical vistas. The myth comes into play when rite, ceremony, or a social or moral rule demands justification, warrant of antiquity, reality, and sanctity.³

Space forbids my going further into the analysis which Dr. Malinowski then proceeds to make of myth proper, after having thus cleared the field and relegated to folk-tale and legend what is not properly myth. This constitutes chapters 2, 3, and 4, and is in fact the second part of the book, dealing with Myths of Origin, Myths of Death, and Myths of Magic. The limits of the book, which is cast in the form of a brief essay, of course prevented the author from going into a detailed presentation of the facts, such as he has done for instance in the *Argonauts of the Western Pacific*. Nevertheless, the author is specific enough, especially in the part dealing with the Myths of Origin, to inspire in the reader full confidence that he is well acquainted with the real life behind the myths.

In the conclusion Dr. Malinowski turns again to the discussion of general theories. I wish it were possible to quote all of it, for it is full of telling sentences such as:

³ This is certainly a very sound position to take as to the genesis of myth. Nevertheless there is also in my opinion another side to myth, namely the symbolic expression of what Jung calls "our collective unconscious." And this is what makes for the universality of myth. Dr. Malinowski seems to object to such a view. "Studied alive, myth is not symbolic, but a direct expression of its subject matter." I rather think, however, that Dr. Malinowski would not deny the symbolic side of myth when viewed in general, not "alive." It is the over-rational explanations of myth that he most objects to, to judge from his conversations with me.

... Throughout this book I have attempted to prove that myth is above all a cultural force, but it is not only that. It is also obviously a narrative, and thus it has its literary aspect . . . Myth contains germs of the future epic, romance, and tragedy.

Mere sociological precedence, legal title, and vindication of lineage and local claims do not lead far into the realm of human emotions, and therefore lack the elements of literary value. Belief, on the other hand, whether in magic or in religion, is closely associated with the deepest desires of man, with his fears and hopes, with his passions and sentiments . . .

... myth serves principally to establish a sociological charter, or a retrospective moral pattern of behaviour.

Myth is therefore an indispensable ingredient of all culture. Myth is a constant by-product of living faith, which is in need of miracles, of sociological status, which demands precedent, of moral rule, which requires sanction.

JAIME DE ANGULO

Kingship. A. M. HOCART. New York: Oxford University Press, American Branch, 1927. (x, 250 pp.) Price \$4.25.

This is a remarkably concise, lucid and stimulating book. The author analyzes the traits forming the complex of kingship in the early historical civilizations about the Mediterranean, and in India, Polynesia, and Fiji. Ordination and initiation ceremonies, the author believes, are the result of the influence of the kingship complex. The initiation ceremonies of Australia and the divine right of kings in ancient Egypt and in nineteenth century Europe are historically related! The argument is closely ordered throughout, there are no gratuitous assumptions, and the author does not hold that every similarity in culture implies diffusion. He has used the data more critically than one is in the habit of expecting from the "diffusionist," and the reader feels that the author is looking for the truth rather than buttressing a thesis; a procedure so unusual that it makes a writer unduly suspect. The method is described as that used by linguists in tracing relationships between languages; but it is, in fact, only partially analogous to the comparative method of linguistics. The author does not state the criterion for determining whether two "similarities" are to be interpreted as independently evolved, or as due to diffusion; and the amount of resemblance necessary to constitute a "similarity" is likewise left to the conjecture of the reader. But the failure to solve these problems does not detract from the value of the book. We find *Kingship* the most stimulating book which has come from the English "diffusionists." Caution, sanity, and willingness to do "one thing at a time," and that well, are among its many virtues.

W. D. WALLIS

PREHISTORY

Beziehungen und Beeinflussungen der Kunstgruppen im Paläolithikum.

HERBERT KUHN. (*Zeitschrift für Ethnologie*, 349-367, 1926.)

Alter und Bedeutung der nordafrikanischen Felszeichnungen.

HERBERT KUHN. (*Ipek, Jahrbuch für prähistorische und ethnographische Kunst*, 13-30, 1927.)

In the earlier of these two papers Dr. Kuhn, the editor of *Ipek*, discovers a parallelism in the development of Franco-Cantabrian, Eastern Spanish, and North African art. Applying the art historian Wofflin's categories, he finds in each instance a sequence of "linear," "pictorial," and a sophisticated "linear" art deliberately turning its back upon the ideals of its immediate predecessor. The "linear" style is characterized by emphasis on contour, while the "pictorial" stresses movement, color, and the internal parts of the forms portrayed. The three areas discussed resemble one another in the earlier style but diverge sharply in their "pictorial" quality. The Franco-Cantabrian artist discards sharpness of contour, achieves perspective, and solves the problem of depth, as in the stag of Laugerie-Basse. These considerations are less prominent in Eastern Spain, where rhythm, composition, and motion play the dominant part. African samples of the "pictorial" depart least from the "linear" stage, though the author thinks he can perceive what might be termed a will to portray depth. Here the Eastern Spanish trend towards composition is replaced by simple juxtaposition.

Dr. Kuhn regards the course of development he registers in three separate regions as evidence of a law of sequence, which he attempts to render psychologically plausible. However, he also believes in diffusion and points out that those African pictures which display the traits of Eastern Spain are nearest that area; while the solitary specimen of polychrome work in Eastern Spain (Albarracín) is explained by the proximity of the Franco-Cantabrian center.

Chronologically, the author defends the Paleolithic character of both the Eastern Spanish and North African specimens of art. In both areas the style has the sensational realistic character that divides Paleolithic art from its conventionalized (*imaginativ-stilisiert*) Neolithic successor, in neither is there a portrayal of Neolithic cultural phenomena, such as agriculture or stock-breeding; and in both there appear representations of animals now extinct. Flamand's argument for the Neolithic age of the North African drawings is

rejected as resting on the doubtful identification of a single implement delineated, which the French investigator interpreted as a hafted ground stone axe. The antiquity of North African art is further attested by the fact that the fauna represented is largely inconceivable under the present climatic conditions of the Sahara-Atlas territory and points to a geological period antedating the Recent. Finally, excavations in Tébessa, Algeria, have unearthed all the stages of Capsian culture, and it is in the terminal Capsian that animal remains peter out, indicating that desiccation set in about that time. Since the pictures belong to the period preceding this climatic change, they must be Paleolithic.

In the second paper Dr. Kuhn reports his personal investigations at Zenaga, 637 km. south of Oran, and at Tiout, 492 km. south of Oran. In both sites his excavations, executed directly below the rock-drawings, revealed a Capsian horizon. At Tiout it was possible to distinguish rock-drawings of earlier and later date, and the author traces the transition from early realism to Neolithic abstraction. Two rams drawn at Zenaga indicate a genetic connection with the Nile valley, and in view of his chronological conclusions the author suggests that the Egyptians were the borrowers. His results embolden him to undertake a systematic comparison of Egyptian rock-drawings with those from the Sahara-Atlas area. Here, too, he discovers a genetic affinity, which likewise appears in the animal representations on early Egyptian pottery, which become more and more conventional.

Since the North African and Egyptian pictures must be contemporaneous, the latter are also Paleolithic and their art is autochthonous:

"Von der paläolithischen Felskunst kann man das Fortleben derselben Motive, desselben Stils bis in das ganz fruhe Neolithikum bis zu den Malereien der Tongefässe der weissbemalten Ware der ersten Kultur erkennen. Daneben lebt wie in Europa auf anderen Tongefässen derselben Kultur schon die stilisierte, imaginative Kunst, die Existenz der verhältnismässig naturhaften Bilder ist nur noch der Nachklang, der auch bald erlischt. Erst in der zweiten Kultur dringen offenbar vorderasiatische Elemente in Ägypten ein."

In conclusion the author thus comes to connect the Paleolithic cultures of Egypt, the Sahara-Atlas region, Eastern Spain, and the Franco-Cantabrian area.

ROBERT H. LOWIE

Stenalderbopludser ved Klampenborg nogle Bidrag til Studiet af den Mesolitiske Periode. ERIK WESTERBY. (Résumé in French.) 219 pp., 45 figs. Copenhagen, 1927.

Prehistory owes much of its progress to volunteers like Erik Westerby; it is especially indebted to Danish savants who have preceded Westerby. Thomsen was the founder of the system of prehistoric classification with his recognition of the ages of stone, bronze, and iron. Another Dane, Sarauw, furnished in Maglemose important data toward bridging the gap that was formerly supposed to separate the Paleolithic from the Neolithic Period. His work was supplemented through discoveries at Svaerdborg by Friis-Johansen, Jessen, and Winge. Now comes Westerby with valuable and confirmatory records from the Mesolithic station of Bloksbjerg near Klampenborg in the vicinity of Copenhagen.

Thomsen's stone age is now divided into four periods: Eolithic, Paleolithic, Mesolithic, and Neolithic. In the Mesolithic three phases have been recognized: Azilian, Tardenoisian, and Maglemosean. The Azilian has affinities with the Paleolithic. At Klampenborg Westerby finds that the Maglemosean passes over without a break from the Mesolithic to the shell-heap culture of the Neolithic Period.

GEORGE GRANT MACCURDY

AMERICA

The Antiquity of the Deposits in Jacob's Cavern. VERNON C. ALLISON. (Anthrop. Papers of the American Museum of Natural History, 19:293-335.) New York City, 1926.

This paper is primarily a geological study and as such should be reviewed by one or more competent geologists. Unfortunately I have not yet found anybody willing to undertake the task; but as the extraordinarily precise conclusions set forth are of importance to archaeology it is necessary to have someone estimate their value critically. Secondly, if we may judge by the appended note, the paper is an attempt to rehabilitate the so-called mastodon engraving discovered in Jacob's cavern in 1921 and which was reported in *Science* (54: 357-8) and described in *Natural History* (21: 591-97).

As is well known to many readers of the *ANTHROPOLOGIST*, Jacob's cavern was excavated and presumably cleared of culture debris in 1903 by Professors Charles Peabody and W. K. Moorehead,

and their report was published as Bulletin 1. Dept. of Archaeology, Phillips Academy. It is also known, to some at least, that, prompted by the new discovery in 1921, Dr. Clark Wissler, later in the same year, made a small trial excavation, and likewise that in 1923 I dug a trench through the entire clay deposit to bedrock, said trench running from the extreme back of the cavern to the front, a distance of approximately sixteen meters. By a short lateral excavation this trench was incidentally connected with the Wissler trial pit, which itself was somewhat enlarged for purposes of better observation. The main trench was also extended some thirty meters down the talus slope fronting the cave to contact with the Little Sugar Creek valley floor. By way of results we found in the talus slope trench—down to an extreme depth of three meters below the surface—both well finished artifacts and skeletal material. In the trench inside the cave we had the same experience as Peabody and Moorehead twenty years before: we found nothing. Mr. J. L. B. Taylor, the owner of the cave, Mr. Vance Randolph, who had part in the new discovery of 1921; Dr. Allison, the writer of the paper under consideration; and three or four workmen were present. All knew that I had time and money to spend and at least some of them, including Dr. Allison, took part with me in closely scrutinizing the trench walls for cultural evidences, but not a solitary scrap of flint or bone was produced. In consequence of this we naturally filled up the trenches and I returned home.

Next I gave my attention to the engraved bone, which I had in my possession for fully ten months and which I studied almost daily at odd moments for several consecutive weeks. During this time I invited and utilized all the expert opinion I could lay hold of, including that of artists, anthropologists, and others. Some experimentation was also undertaken in attempting to make a duplicate specimen with primitive flint tools. The body of data and opinion thus collected was of course to be assembled as a report for publication and for more than a year I strove to complete it. My efforts, however, proved unavailing: I had to turn my attention permanently to other things.

This much was done, however. The examination of the engraved bone was carried as far as deemed necessary, and on December 28, 1923, in open meeting of the American Anthropological Association in New York City, I pronounced the said engraving as, in my opinion, a plain fraud. My reasons were the following:

1. The said engraved bone (with seven other perforated and partly engraved bones and a perforated shell—all now completely disintegrated) was admittedly found, not in undisturbed deposit, but in a heap of loose dirt on the cave floor. Its relation to the remaining cave deposits is therefore unknown and unknowable.

2. It is difficult to understand why seven out of eight bones (not to mention the shell) should have so quickly and so completely disintegrated when the eighth (our carved specimen) is on the whole in a fair state of preservation, as are also the three thousand or more bone fragments taken from various portions of the thin culture deposit found still covering the cave floor in 1923. The only explanation of this remarkable phenomenon would seem to be that the disintegrated specimens had been artificially aged or in some way tampered with.

3. Our new faunistic determinations for Jacob's cavern reveal only recent species—most of those already identified in 1903 by Peabody and Moorehead and now in addition the skunk, coyote, and a new variety of woodchuck. There is therefore no clear evidence of anything in the culture-bearing deposits that need be called Pleistocene.

4. Archaeologists are not familiar, so far as I can learn, with bones and shells perforated exactly after the manner of several of those found in Jacob's cavern by Taylor and Randolph on April 17, 1921. For example, the surviving deer humerus (the one carrying the mastodon and other engravings) is perforated laterally through the condyle—a performance exceedingly rare, if it occurs at all, among primitive bone artifacts. There was also (see illustration, *Natural History*, 19: 593) a phalangeal bone likewise pierced laterally through the condyle—a similarly unheard-of performance. Lastly, after digging up some thousands of deer calcanea in California, the Southwest, Kentucky, and elsewhere, I have yet to see one that was utilized, or at any rate perforated for suspension in the manner of the three or four indicated by the Randolph illustration above cited.

5. The perforation of the surviving bone is unevenly circular or irregular, as if done with a knife rather than a drill: the surface of the perforation is fresh-looking, the pores of the spongy interior of the bone, so far as visible, are open and free from accumulated foreign substances; also there are no signs of wear or polish at the outer extremities, such as might be expected if the object had been carried for any length of time suspended by a cord.

6. The specimen as a whole shows little if any of that wear and polish so commonly found on awls and other bone objects used or worn.

7. Archaeologists are not familiar with exactly this style of art on bone in America, though something of the sort does occur, e.g., in western Europe. Also no similar engravings were found on any of the 3000 bone fragments recovered in the cave in 1923, and the Peabody-Moorehead report mentions none among the thousands of bones recovered in 1903.

8. The engravings on the surviving specimen give the appearance of having been made into the well preserved surfaces of the bone. At least it would be very strange for any ancient artist to have deliberately chosen a deeply cracked bone when presumably any number of uninjured specimens were available. And if the bone has cracked since the engravings were

executed, how comes it that the cracks should have steered so nearly clear of the incised figures, especially as the artificial incisions would naturally have tended to weaken the bone within the limits of their own particular range and not outside?

9. In the case of the mastodon engraving, although done with exceedingly shallow incisions, the color of the artificial incision surfaces is quite different from the surface color of the bone itself. This may mean that the two surfaces have not been subjected to the same degree of weathering.

10. The incisions, both deep and shallow, show such fresh surfaces and sharp angles as could hardly have been preserved on a really ancient object even if it had been lying still in the ground, much less if worn as part of a necklace.

11. The incised lines composing the engravings, or at least some of the lines, are of such depth, regularity, and precision as to preclude their having been executed with flint tools, no matter whether the bone was green or semi-fossilized.

These and other objections to the genuineness of the said engraved bone were duly communicated to both the writer and the editor of the paper, and if my remarks had been printed in full and credited to me I should not now revert to the subject. My observations may be entirely erroneous, but such as they are I still stand by them. The specimen is (or was) in such shape—having been dipped in both oil and heated paraffin—that critical ocular examination was far from satisfactory.

As to who perpetrated this to me obvious fraud, or why, I can of course have little to say. It is of no special importance to me personally and as a matter of fact of little interest. Archaeological frauds are common occurrences, as every dealer in antiquities knows. I have myself had to handle far too many of them in the last few years to give any of them special attention on this score. In this particular case, moreover, I have no grounds even for suspicion. I don't know the people around Pineville, having resided there only three weeks. Messrs. Taylor and Randolph, the discoverers of the engraved bones in question, are, on the other hand, in far better position to judge of the probabilities of the case.

We now return to a brief consideration of Dr. Allison's paper. It purports to present a chronological history of the Jacob's cavern floor deposits, natural and artificial, based on the study of a certain stalagmite removed from the cave in 1923. The plausible theory, presented by Dr. Allison himself, was that inasmuch as stalagmites are sometimes made up of layers indicating perhaps seasonal accretions, we might possibly by a study of this Jacob's cavern specimen

obtain some data as to the age of the cave and its various floor deposits. The fact seems to be that the stalagmite chosen was only partially suitable for the purpose intended. For, as the reader may easily perceive by examining Dr. Allison's diagram and photographs (figs. 6, 10, and 11), or by reading his brief textual treatment, neither the lower nor the upper extremity of this stalagmite reveals perceptible growth layers. The upper half of the central portion, which the author says shows some "15 places" of bedded structure (due, it appears, to the fact that the early cave occupants were thoughtful enough to sprinkle some kitchen refuse on their calendar) serves at best for nothing more substantial than an estimate. The "1213 years" thought to have elapsed during the growth of this part of the stalagmite are arrived at by calculation and not by actual count, as in the case of tree rings and clay varves, and this calculation itself is questionable because we can hardly be certain that the growth layers represent years. They may represent sporadic rainfalls. But, granting the reasonableness of the calculated 1213 year period, we are still faced with the fact that this "period" represents a completely detached section of the time scale for, as the writer himself states, "the stalagmite offers no evidence of when this 1213 year period began or ended." To fix its place in our current chronological scheme, Dr. Allison resorts to what seems to a mere archaeologist an exceedingly hazardous performance: he superposes his stalagmitic growth curve on a California redwood growth curve and tells us in effect that the inhabitants of Jacob's cavern became frisky enough to kick up the ashes in exactly the year 730 B.C.! The scientifically minded are supposed to court accuracy, and I personally would welcome nothing so much as an absolute chronology for prehistoric times, but this is too much. One may grant the probability of our stalagmite's having registered in a general way the increase and decrease in rainfall as indicated by the California redwoods; but how the two growth curves can be so precisely matched up must be left for others to discuss.

Anthropologists must also leave it for experts to pass judgment on the processes by which Dr. Allison calculates a certain small wedge-shaped peripheral stratum (layer 3 in fig. 16), imbedded in the clay floor of Jacob's cavern, to date from between 16,080 and 11,730 B.C.; to consider the probabilities of the remarkable statement (p. 325) that Jacob's cavern was not occupied by man between 11,730 and 1226 B.C.; and to explain how the bone with the engraved mastodon

figure becomes connected with "layer 3" and thus comes to date "back to somewhere around 16,000 to 12,000 B.C." To an outsider like myself the paper seems altogether too brief (in fact, is not complete in itself) for the many precise conclusions it professes to establish.

Dr. Allison then describes in detail his discovery in 1924 of "layer 3" above mentioned. It appears to be a second bone-containing layer confined, it seems, to a narrow space adjacent to the west wall and including the trial pit dug by Dr. Wissler. This is an interesting contribution. It substantiates in a measure what Dr. Wissler thought he found in 1921 and is even remarkable in view of what we failed to find in 1923. The writer states that with the bone fragments in layer 3 there were traces also of small flint chips and of charcoal. Such items do not of course prove man's presence; but in any case the legend to Dr. Allison's transverse section of the cave deposits (fig. 16, the source of which, by the way, is not explained) indicates that there were flint chips also in layer 2 above; as well as in layer 1, supposed to have been removed in 1903. It becomes therefore, a fair question whether we have in layers 2 and 3 really distinct strata. At all events we cannot on the evidence furnished attribute much importance to layer 3 as a repository of cultural data. It may represent nothing more than a depression close to the wall into which bones were washed from the roof fissure adjoining; or the bones, flint chips, etc., may even have rolled in from the superficial culture deposit on higher ground in the central part of the cave. It would be interesting, at least, to trace out the vertical disposition of layer 3 in a north-south direction to see if it does not connect with the main superficial culture deposit.

The very small fragments of animal bone obtained from layer 3—even if they form part of a separate and older culture stratum—furnish no evidence of a distinctly Pleistocene fauna. And while Dr. Allison states that the matrix itself yields chemical indications of being in large part made of decayed bone—probably bones of large mammals—this chemical composition can doubtless be explained in other ways. Large bones, any bones, do under special conditions decay or are transformed into lumps of phosphatic substance, but those who have had considerable experience in digging out Pleistocene deposits know that all bones, large and small, and certainly teeth, are as a rule well preserved. But why precisely should bones of any large animal occur in a cave the deposits of which are supposed to

date from Late Pleistocene times? What large mammals, except the horse, roamed over the locality? For a partial answer it may be stated that when it comes to the character and composition of Late Pleistocene fauna there is no place, probably, on the whole American continent about which we are better informed than we are about just this southwest sector of the Ozarks. For in the very year that Peabody and Moorehead excavated Jacob's cavern, Barnum Brown of the American Museum was at work in the great Conard Fissure only about seventy-five miles away to the southeast in Arkansas. Thousands of skulls and jaws (not to mention body bones) of a partially extinct fauna were obtained and no large mammals such as the mastodon, e.g., were among them. This is negative evidence, of course, as is also the fact that two seasons' work at the Conard Fissure yielded no suggestions of man's presence in Late Pleistocene times; but it is evidence, nevertheless, that cannot be ignored.

It is necessary to say a word about Dr. Allison's physical and chemical investigations of the engraved bone. Regarding his tests as tests, no anthropologist can have anything to say. But as regards the execution of such tests to make them really applicable to the solution of the archaeological problem confronting us, several things might doubtless be said. One is that I hope it is true even in chemistry and physics that two things not equal to the same thing need not be equal to each other. Dr. Allison subjects three bones to identical tests: but he neglects, in the first place, to take identical bones, and he neglects in the second place to give the two bones chosen for comparison identically the same preliminary treatment that Mr. Taylor gave the original bone. Another is that if the statement on page 332 claiming the engravings on the original bone to be as old as the bone itself rests on rigid chemical analysis, the precise data are not given; and if, on the other hand, it rests on mere ocular inspection, the expression "oxydized to approximately as great extent" hardly meets the requirements of the situation.

And so, for the present at least, let the Jacob's cavern mastodon rest in peace. Meanwhile we might possibly get some more light on the subject by heeding Dr. Allison's recommendation to have Jacob's cavern and the talus slope in front completely excavated. I cheerfully second this recommendation and would add the suggestion that inasmuch as Professor Moorehead is still full of energy he be asked to complete what he commenced twenty-four years ago.

N. C. NELSON

Animal Stories the Indians Told. Selected and edited by ELIZABETH BISHOP JOHNSON. New York and London: Alfred A. Knopf, 1927. Small 8°, 155 pp.

It is encouraging to anthropological science that an increasing use is being made of its studies among uncivilized peoples. In general the field worker had no preconceived idea of the ultimate extension of his collections to other lines except pure science. It is found, however, that his contributions to educational and literary fields are reaching great numbers of eager readers in the form of books like Mrs. Johnson's.

The stories have been selected with care from the large body of folk-lore extant and are presented in the simple direct form of the Indian relator, quite intelligible to children. The stories are from the Eskimo, Tlingit, Tsimshian, Caddo, Pawnee, Cherokee, Seneca, Chipewewa, Yuma, Miwok, Hopi, Zuni, and other tribes, and from the Arawak. The book is in Borzoi type and is beautifully done. The illustrations are of animals "shot by the Camera."

WALTER HOUGH

Familien- und Erbrecht im praekolumbischen Peru. HERMANN TRIMBORN. (Zeitschrift für vergleichende Rechtswissenschaft, 42: 352-392. Stuttgart.)

This is a sequel to the same author's "Der Kollektivismus der Inkas in Peru," published in *Anthropos*, 19: 978-1001, 1924; 20: 579-606, 1925. It differs from the former monograph not so much in its more special subject, as in the injection of the Kulturkreis theory. As a result there is less of the quoted documentation which, in combination with the judicious interpretation, makes the "Kollektivismus" so valuable; and the reader is left with frequent doubts whether a conclusion is empirically arrived at or is forced by the requirements of the scheme. The reviewer, for instance, has tentatively advanced the hypothesis that in America patrilineal institutions are in general older than matrilineal ones, and that the latter tended to supersession by a non-sib quasi-political patrilineal organization in the higher centers. An objective confirmation of this suggestion for Peru would naturally be acceptable to him. Yet he is left suspicious that Trimborn's use of the imperfect evidence reflects rather his adherence to a school than an actual induction. Others are likely to feel the same way on other points.

The considerable success of the Kulturkreis school in capturing in Germany the use of the term "culture-historical" is rather remarkable. The implication made is that there can be no middle ground in ethnology between unilineal psychologizing evolutionism and a culture history intertwined with particular hypothetical assumptions. Yet there is obviously a wide distinction between the essential culture-historical point of view and any one special phase of it with hypothetical entanglements. There is a parallel situation in England, where at present one is liable to being held up as an anti-diffusionist and evolutionist if one does not accept the Egyptian origin of practically all higher culture.

Culture history was studied and diffusions were traced before Graebner, Schmidt, Elliot Smith, and Perry filed claim of ownership to the concepts. When these claims are abated, the world of scholarship will probably be readier than now to discuss the solid specific contributions of the two schools.

A. L. KROEBER

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DISCUSSION AND CORRESPONDENCE

A NOTE ON KALMUKS IN BELGRADE¹

Despatch No. 225

Belgrade, May 18. 1927.

The Honorable
The Secretary of State,
Washington.

Sir:

I have the honor to report that there is at present in Belgrade a small colony numbering about two hundred persons consisting exclusively of Kalmuk Tatars (pro. Kalmyk), who fled here from Russia during the first Bolshevik aggressions. Most Belgrade people are entirely ignorant of the existence of this curious group at the capital. The older men of this Kalmuk community were mostly members of Denikin's army and all are experienced horsemen. The King employs some twenty or more as grooms in the Royal stable and others have found work in connection with racing-stables and the like. All these people are Buddhist Kalmuks and they are permitted to have their own Lama (priest) to minister to their religious needs. The Lama and an assistant Lama, together with a recognized Cantor (a sort of sub-deacon), are supported entirely by free will offerings. The Lamas who are strictly celibate are in fact not allowed to work at all at any productive occupation. The Chief Lama (Kalm. aldyrtá gelyń) has called several times at the Legation, in order to discuss with me the condition of his community and the mysteries of his particular sect. He speaks only Russian as his foreign language and is a rather intelligent type of Mongolian. He informs me that his Kalmuks have no complaint against the Serbs who have treated them very nicely and allowed them to have their religious services in a private house (that of the Lama himself), although, he added, objection would probably be raised if it were proposed to erect even a small temple, as Buddhism is not one of the legally recognized religions of Yugoslavia.

The Lama further informed me that he had received his religious training from an older Lama in Astrakhan where the majority of these

¹ This communication was sent by the Department of State to the Smithsonian Institution and transmitted to the Editors by Dr. A. Hrdlicka (Aug. 9, 1927).

Kalmuks originated and that his teacher was a regular graduate of the lamasery of the Dalai Lama of Lhasa in Tibet which is the centre of this branch of the Buddhistic faith. He then invited Military Attaché Godson and myself to attend a regular Buddhist service at which we should hear the ritual in full with the usual cantillation employed in all the lamaseries which owe allegiance in Tibet to the Dalai Lama.

We agreed to accept this invitation and on May 15th, 1927, we drove out to the Kalmuk colony, which inhabit clean but small wooden houses on the outskirts of Belgrade. There, after receiving the formal greetings of the members of the colony, all of whom show the Mongolian type to a marked degree—short, thickset figures, with high cheekbones and eyes set obliquely—we entered the house to attend the service.

Inasmuch as I am unable to find any detailed description of such a rite in any works on Lamaistic Buddhism, which deal chiefly with the faith of the Tibetan Buddhistic school, I venture to give herewith a full account of the ceremonies, which I saw at very close range, as Colonel Godson and myself stood in close proximity to the officiants in front of the shrine.

The shrine consists of a square box of about 3 by 3 feet, covered with light blue paper and set upon an ordinary table also draped in blue, which is the color of the Buddha. Hung on the wall around the shrine are paintings of various Lamaistic saints (Bodhisats, see below), and, standing on top of the shrine-box, is a brass image of the first successor of Gautama Buddha. The front of the shrine is a square opening measuring about 2 by 2 feet, and inside of a tabernacle placed upon a shelf, half way up in the middle of the opening, is a very small image of the Buddha in black teak, surmounted by a paper representation of the triple Lamaistic mitre.

In front of the shrine stands a credence, upon which are laid in serried rows fifteen small silver cups, in one of which burns a single small wax candle.

The Chief Lama, Assistant Lama and Cantor stand side by side, facing the altar with a small third table near them, on which are the aspergil, fixed in a small silver urn filled with holy water, a flagon filled with colored sugared water, and a brass dish, together with a dish full of roasted barley corn (like our popcorn). On this serving table is also spread out an orange colored maniple (arm-kerchief).

The two Celebrants and the Cantor, standing side by side before the shrine begin to intone, mostly in a unison varying only on two deep notes, certain prescribed aspirations to the Buddha from the Tibetan Lamaistic books in the Tibetan ritual language. The Kalmuks do not use Tibetan, but southern Mongolian. I observed with great interest that at the close of each long phrase, the singers expelled their breath with a choking sound in precisely the same manner as that followed in similar prayers or incantations when sung by the North American Zuni and Pueblo Indian priests when intoning their grain or corn rite.

At certain points in the Buddhistic service, I think when the sacred name of Buddha (the Tibetan equivalent of the *Nama Ammi Dabuts* of the Japanese Buddhists) recurs with fervor, the Chief Lama covers his right arm as far as the wrist with the orange maniple and pours three times a double libation of the sugared water into the brazen dish, into which he had previously scattered a layer of the barley-corn. Taking up pieces of this mixture, the Lama flings them right and left, and then, dipping the aspergil into the holy water, he asperges the altar, but not his fellow officiants nor the congregation, thus apparently indicating an offering of the consecrated water to the Buddha, and not its use, as in Christian ritual, for purifying the people.

The maniple is shifted to the left arm whenever he uses that arm to touch a sacred vessel.

It is interesting to note that, on top of the aspergil, is a peacock feather. Since the peacock is well known to be sacred to the evil or negative influence—for instance, the image of the entire bird is the object of adoration under the name of Melek Taus by the Yézidis or Devil worshippers of Asia Minor—I asked the officiant why he used this apparently malign emblem over the holy water. He replied that as it is an evil and "poisonous" thing, the peacock feather is intended to keep the malignant spirits from entering into and thus polluting the sacred water; an interesting example of oriental homoeopathy!

As the service proceeded and finally came to a grand climax, when it suddenly ended, the chant-melody rose to a distinctly four-tone cantillation and closed with a word which sounded very like the prototype of our more modern *Amen*.

In certain canticles the Cantor struck two convex pieces of silver together in rhythm with the chant, which action produced the effect of a sweet-toned bell and reminded one strongly of the mass-

bell of the Roman Catholic church. In fact, the entire *misc-en-scene* was reminiscent of the remark of the Abbé Huc when he first saw the Lamaistic ceremonial at Lhasa, that this was a "travesty" of the Roman ritual, a statement which was ridiculed by George Borrow in his strongly anti-Catholic works "Lavengro" and the "Romany Rye," by making the Catholic priest in the dingle sneeringly refer to the Lamaistic ritual as having been copied by the Catholics.

The Chief Lama was vested in an orange colored cassock with a cincture of the same hue, and wore a light yellow stole over his left shoulder but not crossed. He did, however, once or twice during the rite, draw the stole across his breast in much the same manner as is done by the orthodox Greek priests. The vestment of the Assistant Lama was of the same shape, but of a much darker orange color, except that his stole was also light yellow. The Cantor was also robed in cassock and girdle of even darker hue, but wore no stole, which is the priestly insignium.

It should be remembered by those interested in the evolution of ritual that the lamaistic Buddhism of Tibet is a corrupted form of the simpler doctrine of the "Lord Gautama," the first Buddha, who taught the utmost simplicity of living and thought, striving only at a goal which is the very opposite to that of Christianity, viz., so to obliterate self by the killing of desire which, of course, also implied the elimination of ambition and energy, as eventually to be able to avoid the life or lives after death and to be absorbed into the essence of the All-pervading, and in this way to become one with Deity or as it is commonly expressed, "to attain Nirvâna," which does not imply extinction but absorption. To this simple system, which was too simple for the devious trends of the Oriental mind, there were later added especially in Tibet a number of theological developments which arranged a series of heavens and added at least one new character, that of the Boddhisat, the being who has so evolved himself as to be on the plane directly below the Buddha, and who with the Buddha remains always the connecting link between the Divine and the Human, and who has the power at will to emerge from the Nirvâna absorption and remanifest himself for the benefit of mankind. These Boddhisats are therefore beatified saints who have a great influence on human affairs. In addition to this the Tibetan school introduced gradually many of the demons of the original native region who must be propitiated and held aloof from the sacred rites as seen above by means of such charms as the peacock's feather. The bell is

also used as a method of frightening away devils and apparently not as a signal, as in the Roman Catholic church, to the faithful to adopt any special attitude of worship.

In Tibet there are still two Grand Lamas, the reformed Dalai Lama or Yellow Lama, to whose school the Belgrade Kalmuks belong, and the Pantshen Lama or Red Lama whose followers still practice the grossly superstitious rites of the primitive pre-Buddhistic animistic Tibetans. In spite of the difference between the two sects, both these Lamas are regarded as being incarnations of the Buddha, so much so, that when one dies, the survivor, either the Yellow or the Red Lama, has the right to choose the successor of the deceased by eliminating a list of three names from a larger list of male infants submitted to the surviving Grand Lama and then by ordering the priesthood of the higher grades who like the Roman Cardinals, are entitled to a vote for the Head of the Church, to choose one of the three. Once elected, this child is regarded as being a Living Buddha.

The Belgrade Yellow Lama informed me that the doctrine of transmigration is strictly held by his sect and that he teaches his flock that while it is manifestly impossible for any person leading the "world-life" to "get off the wheel of events" and attain anything approaching to Nirvāna, he can assure a better reincarnation to those of his people who have "lived well," that is, who have followed the precepts of ordinary morality, such as those against theft, adultery, etc.

It is strange to find this model little community of Mongol- (Kalmuk) speaking Tatars—only some of the leaders know Russian and a little broken Serb—so far west as Belgrade, and I have, therefore considered their presence here as worthy of record, although they can not in any sense be regarded as a political minority.

I have the honor to be, Sir,

Your obedient servant,

JOHN DYNELEY PRINCE

CERTAIN "WRITINGS" OF NORTHWESTERN INDIANS

The two articles by Harlan I. Smith in a recent issue of the *AMERICAN ANTHROPOLOGIST*,¹ call to my mind certain "writings"

¹ Harlan I. Smith, A List of Petroglyphs in British Columbia, *AMERICAN ANTHROPOLOGIST*, 29: 605-610; A Pictograph on the Lower Skeena River, British Columbia, *ibid.* 611-614, 1927.

of the northwestern Indians which I saw while in the Northwest as a government official.

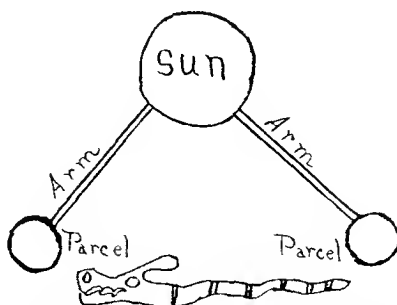


FIG. 1 Tomnanawis of Chief Cha-me-tsot of the Lummi reservation, near Bellingham, Washington, with a drawing of the Lightning Snake of the Makah.

Once when at the "portage" on the Lummi Indian reservation, across the bay from Bellingham, Washington, I visited the ruins of



FIG. 2 Pictographs from the Nez Perce, Coeur D'Alene and Cayuse Indian country in eastern Washington

an old give-away ("potlatch"), dance hall. A row of column posts, each about two feet in diameter, marked the site. Nothing else of the great hall was left but a ridge of earth that marked the outer

boundaries of the building when intact. On examining the columns I found that each post had a carving on it facing the inside of the hall, and that the carvings were similar. I give herewith a reproduction of these drawings (figure 1). I also inquired among the Indians for an explanation of this totem *tomanawis*, and the following was given me by William McClusky, the Indian judge of the reservation:

Chief Cha-me-tsot once owned the *potlatch* house at the portage. The drawings on the totem posts there are his *tomanawis*. The Sun, carrying a parcel of valuables in each hand, came to him in a dream and said: "Your storehouses (trunks) will always be full. You will therefore give two more feasts than the average chief." Custom had established the rule that the ordinary chief should give three feasts in a lifetime, that is, feasts of the *potlatch* type. So Chief Cha-me-tsot built the *potlatch* house and carved his *tomanawis* on its totem posts. He then gave five feasts, two more than the average, as the Sun in the vision had commanded him.

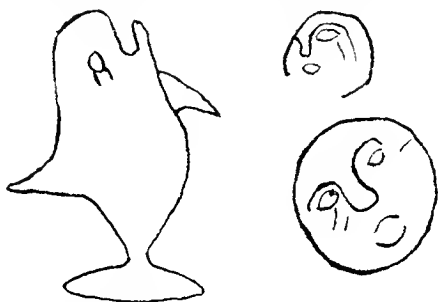


FIG. 3. Rock carving at Ozette Indian village, on the coast southwest of Cape Flattery, Washington.

Similar drawings were found in eastern Washington, usually cut on some smooth rock surface. One, a drawing of which is here given (figure 2), depicts the sun carrying two parcels surrounded by various animals. The sun in this case would seem to represent a chief who is going to give two extra *potlatches*, the animals represented being the totems of the clans of the tribe invited to the feast.

A rock carving at Ozette on the Pacific coast, southwest of Cape Flattery, Washington (figure 3), depicts a fish, the half moon, and the full moon, the position seeming to indicate that the fish is caught between the half and the full moon, which was probably the meaning intended.

Innumerable other carvings and glyphs are probably yet undiscovered in that vast area.

CORNFIELDS.

GANADO, ARIZONA

ALBERT B. REAGAN

POTTERY FROM DEEP SPRINGS VALLEY,
INYO COUNTY, CALIFORNIA

The distribution of pottery in California is widened by the findings of potsherds in Deep Spring valley in Inyo county. Deep Springs valley lies just east of Bishop and is separated from Owens valley by a high pass at the junction of the White mountains and the Inyo range. It is now inhabited by the Eastern Mono or southernmost members of Northern Paiute.

The pottery is of an extremely crude type and shows considerable irregularity of thickness even in the small fragments obtained. The fragments are darkish gray to black on the inside and brown on the outside, suggesting that they were fired from within. Some contain a large number of small crystals of quartz and feldspar indicating a considerable admixture of sand. Whether the pottery had been coiled or simply moulded from a large lump could not be determined from these fragments. There was no attempt at decoration of any sort, and the only marks on the fragments are those of the tool, probably a stone or stick, used to smooth the clay, running perpendicularly on the outside and horizontally on the inside. Some fragments which are blackened on both sides suggest use in cooking.

As the potsherds are all surface finds and as some excavation showed no sub-surface remains, they cannot be said to be of great antiquity. The art of making pottery is, in fact, within the memory of the Indians living in the valley at the present time. While I have not heard of pottery from the region of Big Pine and Bishop, that part of Owens valley nearest to Deep Springs valley, it is known to occur among the Western Mono living on the eastern slope of the southern Sierra Nevada,¹ to which country the art of pottery-making seems to have been carried from the Yokuts of the San Joaquin valley. In lack of further data from regions farther to the east of Owens valley, it seems reasonable at present to assume that this represents a further diffusion from the San Joaquin valley rather than an extension from the Colorado river or the Southwest pottery.

J. H. STEWARD

UNIVERSITY OF CALIFORNIA,
BERKELEY, CALIFORNIA.

¹ A. L. Kroeber, Handbook of the Indians of California. B.A.E. Bull. 78. 537, 589.

A LONG ISLAND FIND

As a matter of record, it may interest the readers of the *ANTHROPOLOGIST* to know that in September, while excavating an Indian camp ground at Deep Hole creek, Mattituck, Long Island, I opened a shell pit in which had been cached a clay pot of pure Algonquin type, eleven inches high, and which I was fortunate enough to recover whole. The pit was small, being only 30 inches wide and 28 inches deep including 8 inches of overlaid loam. The pot rested on a platform of stones, bottom up, shell refuse being packed around and over it. A fire had been made on top of the pit, but plainly no use had been made of the pit except for this cache. The pot is decorated both outside and inside with diapered scorings of a scallop shell, the decoration being confined to the body, the rim, oddly, being left plain.

This, so far as I know, is the only sizable pot yet recovered whole from eastern Long Island. Two other pots, restorable, but in fragments, were recovered nearby on the same site and are of pure, early type. No trace of white contact has been found, but shards from an upper terrace indicate an intrusion of Iroquois influence in the late period.

MATTITUCK, LONG ISLAND,
OCTOBER 29, 1927.

CHARLES F. GODDARD

NOTE ON ST. LAWRENCE ISLAND

Eskimo Measurements of Implements

Every article is made to fit the user. Kaeluk says that whales were formerly killed with a long lance, by stabbing behind the front flipper. This lance had a short handle of length, from the left elbow to the right middle finger tip. To this was added, one, two full arm spans (fathoms) and one length from the left elbow to the right middle finger tip.

Arrows were arm length from the shoulder to the thumb end.

Bows were of a length so that the two tips could just be caught between the thumbs and index fingers of the extended arms.

Kaeluk and Ogchoolki told me that harpoons "a long time ago" were made of such length that the hunter could just reach high enough to place the harpoon head on when the harpoon stood perpendicular. He would not tip it down to put the head on. If he should

happen to have a harpoon too long to be headed in this manner he returned home without killing his walrus. The wise hunter measured his harpoon before departing for the hunt, others had to return home to cut off the shaft.

Kaeluk said canoes were one fathom wide in the middle and four fathoms long, one arm's length (armpit to finger tips) in depth: the width of the bottom in the middle, elbow to elbow, the arms being horizontal and slightly adducted at the shoulder joints.

The captain's place is of width equal to twice the distance from the tip of the thumb to the tip of the middle finger (with thumb at right angles to hand) plus once the distance from the tip of the thumb to the tip of the middle finger with thumb bent at right angles.

The "legs" (ribs) of a boat had a width equal to that of the hand across the palm, and cross-pieces in the bottom of the width of the hand across the fingers at the first phalanx.

Paddles are one fathom in length, with hands clasping each extremity.

Harpoon-heads for whale equal the length from the hypothenar edge of the palm to the tip of the abducted thumb with closed fist. The hole for the line is sufficiently large to admit the tips of the index and middle fingers. For bowhead whale harpoon head, the length is from the knuckle of the little finger at the metacarpo-phalangeal joint (hand clasped) to the thumb tip plus finger nail length; for the devil-fish, it is just flush (i.e., minus the nail length). The sloping or proximal end of a harpoon head has the length of an index finger.

The stone blade for a harpoon is slightly less than three fingers in width at the square or proximal end. The blade is sharpened on whetstone until light will show through the edge of the blade, then the edge is hardened by rubbing with an oiled finger. The heads are kept in a bag made of "sea pigeons" skin.

1919 SOUTHERN BUILDING,
WASHINGTON, D. C.

RILEY D. MOORE

ANTHROPOLOGICAL NOTES AND NEWS

RESEARCHES OF RUSSIAN ANTHROPOLOGISTS

The Academician N. Y. Marr is reported as heading an expedition to southwest Africa for the purpose of studying the Hottentot language.

The Trans-Caucasian Scientific Association organized two expeditions in 1926,—one to the Ajar of Georgia, the other to the Nakhechivan Republic. The Ajar language belongs to the Georgian stock, but the isolation of the people in the mountains produced appreciable morphological peculiarities. In the Nakhechivan Republic excavations were conducted, leading to the investigation of tombs and of a ruined city. The material collected will ultimately be housed in the Azerbaijan State Museum in Baku.

The Museum of Anthropology of the Academy of Science has organized an expedition to the Sverdlovsk and Tagilsk districts of the Trans-Urals, which formed a great metal-mining center in the Bronze Age.

The Academy has begun work on a racial and national map of the U.S.S.R., based on the census of 1926.

AMERICAN SCHOOL OF PREHISTORIC RESEARCH

(Report by the Director on the work of the seventh season.)

In certain respects the work accomplished by the American School of Prehistoric Research in 1927 marks a departure from preceding years. In addition to the regular program there were four prospecting parties in the field. Moreover, during the term, the group of students was successfully turned over twice to former students of the School.

Reconnaissance

Southern France.—The prospecting trip by the Director and Mrs. MacCurdy was in southern France; the cavern of Aldène at Fauzan near Olonzac (Hérault); the Grottes des Fées on the Pic d'Ambouls near Nant (Aveyron); and the much discussed site known as Glozel near Vichy (Allier). Aldène is one more of the many caverns in southern France on the walls of which Paleolithic man left example of his art. These were discovered in February, 1927. It has also yielded remains of Neolithic man including fine examples of pottery. The

Grottes des Fées near Nant may also have been the abode of man in both Paleolithic and Neolithic times, but as yet only Neolithic remains have been discovered. As for Glozel, the prehistoric problems it has forced upon the attention during the past three years are now up for solution before an International Committee.*

Rumania.—One of our students, Dr. V. J. Fewkes of the University of Pennsylvania, spent a part of June exploring a group of caves in the vicinity of Steierdorf, Rumania.

Austria.—Under the auspices of the School, a party in charge of Dr. Kurt Ehrenberg of the University of Vienna, explored the newly discovered Schreiberwand cavern on the Dachstein mountain near Salzburg.

Greece.—After the close of the summer term, two of the students spent a month in Greece with a view to the checking up of prehistoric collections and sites.

Seventh Summer Term

The seventh summer term of the School opened in London on June 27th and closed in Cologne on September 15th. The special fields covered were southern England; a section of the Somme valley in the region of Amiens; Paris and St. Germain; Brittany; the region of Civray (Vienne), where the members of the School dug for a week as the guests of Mr. James T. Russell, Jr., a former student of the School; Charente; Dordogne with a season of digging at Castel-Merle near St. Léon-sur-Vézère and local excursions to important prehistoric sites and museums; an excursion to the caverns of Ariège and Haute-Garonne on the invitation of Count Begouen; Altamira, northern Spain; Neuchâtel, Zurich, St. Gallen, and Bâle, Switzerland. Attendance on the annual meeting of the German Anthropological Association marked the close of the term.

Summary

Of the eleven students taking part, about half were unable to remain for the entire term; these were permitted to join for short periods. In addition to the student body, permission was granted thirty-four other persons interested in our work to take part in our program—especially in Brittany and the Dordogne.

* This Committee has since reported against the authenticity of the Glozel specimens.

Of the fifty conferences given, twenty were by the Director and thirty by twenty-eight specialists. To the latter, the Director desires to express his deep sense of appreciation. Sixty-three important prehistoric sites and thirty-five museums and special collections were examined. As a result of the twenty-five days of digging, collections were sent to seven contributing institutions. At the end of the season five students remained in the Old World for further study and field work.

Prospects and Needs

The School has demonstrated its ability to give a limited number of students intensive training in prehistoric archaeology during the summers. It should be able to follow up these short periods of intensive training by taking the initiative in the location and development of new projects either alone or in cooperation with other existing institutions. During the past summer, invitations have come to us from Oxford University and the British School in Jerusalem to cooperate with them jointly in prehistoric exploring expeditions both in Irak and in Palestine. Such a program renders highly desirable not only permanent headquarters for the School but also adequate endowment and if need be special funds for special projects.

With a permanent base, preferably at home, serving as a laboratory and repository for apparatus, books, and specimens, branch bases could be established or existing ones made use of, on the other side as the occasion demanded. With adequate endowment, professorships and lectureships might be maintained, at least one of which should be for distinguished foreign specialists. We already have the promise from an able foreign prehistorian and ethnologist that he will come to America and offer gratis a course of lectures as soon as such a center shall have been established. Surely we cannot afford to be so lacking in appreciation of such a generous offer as to fail to take advantage of it.

Bulletins

During the year two Bulletins have been published by the School: Bulletin Number Two containing the Minutes of the First Meeting of Incorporators and Trustees, the Certificate of Incorporation, and the By-Laws of the School; and Bulletin Number Three containing the Report of the Director on the Work of the Sixth Season (22 pp. and 26 figs.).

YALE UNIVERSITY,
NEW HAVEN, CONNECTICUT

GEORGE GRANT MACCURDY

ANTHROPOLOGICAL SOCIETY OF WASHINGTON

The following were elected on January 17, 1928, to serve as officers for the Anthropological Society of Washington for the current year. President, Dr. Charles L. G. Anderson; vice-president, Mr. Frank H. Roberts, Jr.; secretary, Dr. John M. Cooper; treasurer, Mr. Henry B. Collins, Jr.; councillors, Mr. D. I. Bushnell, Jr., Dr. Daniel Folkmar, Mr. Herbert W. Krieger, Mr. Felix Neumann, Mr. B. H. Swales.

LINGUISTIC SOCIETY

The Linguistic Society of America is undertaking to supply in American education a feature which is quite new, a Linguistic Institute devoted to research and courses in linguistic science, general and special. The Institute will run from July 9 to August 18, at New Haven, with the facilities of Yale University at its disposal, it will be managed by a committee of the Linguistic Society, consisting of E. H. Sturtevant of Yale University as Director, R. E. Saleski of Bethany College as Assistant Director, and R. G. Kent of Pennsylvania, Secretary of the Linguistic Society.

The circular which went out in January gives a rich choice of courses. Anthropologists will be most interested in those by P. E. Goddard of the American Museum of Natural History in New York on Linguistic Anthropology, and Methods of Studying Unrecorded Languages; in two courses on Phonetics, by G. O. Russell of Ohio State University; in the Introduction to Linguistic Science, by E. Prokosch of Bryn Mawr; in that on Semantics, by W. Petersen of Florida; but some will have special interests leading them towards the courses in Sanskrit, Greek and Latin, Romanics, Germanics, English, Semitics, Turkish, etc., offered by the staff of twenty-three scholars who form the faculty of the Institute.

New Haven is a pleasant spot for a summer stay, with sea-bathing close at hand. Association with scholars and students of similar interests will be also a strong incentive to attendance. All in all, the Linguistic Society is, by the creation of this Institute, doing a notable service not only to linguistic studies, but to other kindred and overlapping fields of scholarship. Requests for circulars and for information should be directed to Professor E. H. Sturtevant, Director of the Linguistic Institute, Box 1849, Yale Station, New Haven, Connecticut.

U. S. NATIONAL MUSEUM

DR. HRDLIČKA returned on November 18 from a successful trip through Europe in the interests of anthropology. The particular object of the journey was to see the most recent discoveries in the line of ancient man in Europe. The trip extended through France, Belgium, Germany, and Czechoslovakia, and ended in England where Dr. Hrdlička delivered the Huxley Lecture before the Royal Anthropological Society on November 8.

MR. MATTHEW W. STIRLING of Berkeley, California, visited the Division of Ethnology two days last week and looked over the collection of Pygmy and Papuan material collected by him in central Dutch New Guinea.

—*Smithsonian Local News*

BUREAU OF AMERICAN ETHNOLOGY

DR. FRANK H. H. ROBERTS, JR., spoke before the Anthropological Society of Washington on Tuesday afternoon, November 22. The subject of Dr. Roberts' talk was "A Late Basket Maker Village in the Chaco Canyon." The results of the excavations conducted during the summer of 1927 were presented, together with a brief discussion of the chronological development of prehistoric Southwestern cultures.

MISS FRANCES DENSMORE has recently sent to the Bureau a paper entitled "Winnebago Songs Used in the Treatment of the Sick." In these songs for treating the sick Miss Densmore finds two distinct types, the songs received in dreams and those that resemble the songs of the Grand Medicine of the Chippewa which had as its object the prolonging of life. In the former there is the soothing quality noted in healing songs of other tribes, and it is said that the Winnebago doctors, like those of other tribes, strove first to quiet and then to cheer the patient.

—*Smithsonian Local News*

* * * * *

THE INSTITUT D'ETHNOLOGIE of the University of Paris announces a large series of courses given during the academic year 1927-1928, ranged under the main heads of Ethnography, Sociology, Human Geography, Linguistics and Phonetics, Physical Anthropology, and Human Palaeontology. The following may be cited as of special

interest to our readers.: M. Raynaud, Civil and Religious History of Yucatan, Mexico and the New World; Religions and Civilizations of America; M. Capitan, Origins and Mechanisms of the Peopling of America; *id.*, Central America, Ethnology and Ethnography of Ancient Inhabitants; M. Vendryes, General Linguistics; M. Boule, Human Palaeontology Outside of Europe; M. Granet, Study of Ethnographic Texts from Chinese Historians; *id.*, Geography, History and Institutions of Far Eastern States. Since the Institut was founded by the French colonies, special attention is naturally devoted to courses on the Sudan, Madagascar, North Africa, and Indo-China.

DR. W. JOCHELSON, of the American Museum of Natural History, who was reported as leaving for Leningrad has decided to remain in this country for about two years, in order to be able to work up a monograph on the Yakut, based partly on his collections at the American Museum of Natural History.

MR. MAURICE G. SMITH, formerly of the University of Nebraska and of Brookings Institute, has been giving courses at the University of Colorado this year as assistant professor of anthropology.

ON SEPTEMBER 1, 1928, Mr. Charles Clark Willoughby, since 1915 Director of the Peabody Museum of American Archaeology and Ethnology, Harvard University, will be Director Emeritus, and Dr. Samuel Kirkham Lothrop will become Director. Dr. Lothrop has been Research Assistant in anthropology at the Carnegie Institution from 1916-1923, and Research Associate in the Museum of the American Indian from 1923 to the present.

AT THE ANNUAL MEETING of the Board of Trustees of the American School of Prehistoric Research, Dr. George Grant MacCurdy of Yale University was reelected Director of the School for a term of two years.

BRUCE CARTWRIGHT has been appointed an associate in ethnology on the staff of the Bernice P. Bishop Museum, Honolulu.

—*The Museum News*

ON MONDAY, NOVEMBER 28, 8:15 P.M., the Section of Anthropology and Psychology of the New York Academy of Sciences, in conjunction with the American Ethnological Society held a meeting, at which Dr. Waldemar Jochelson lectured on "The Caucasus and its Peoples."

RECENT ARCHAEOLOGICAL expeditions of Soviet investigators are reported to be working under Professor S. Rykov in Kuznetsk on remains of old Finnish culture of the 9th to the 11th centuries; under Professor Smirnov in Izhesk district on Votyak sites of the 10th to 12th centuries; and the completion of the Ukrainian Archaeological Expedition is reported resulting in the discovery of late stone age and early bronze age remains. (*Weekly News Bulletin USSR*).

UNDER THE GENERAL editorship of Professor G. Elliot Smith, a new series has been initiated, entitled "The Beginning of Things." The publisher is Gerald Howe, Ltd., London. Each volume will be sold at 2s, 6d. The first volumes published in September 1927, are: "Corn from Egypt," by M. Gompertz; "New Year's Day," by S. H. Hooke; "The Golden Age," by H. J. Massingham.

WALTER MCCLINTOCK has been appointed to a research fellowship in ethnology at the Southwest Museum in Los Angeles. *Science*.

DR. MILO HELLMAN, research associate in physical anthropology at the American Museum of Natural History has been appointed professor of comparative dental morphology at the New York University College of Dentistry. *Science*.

DR. KNUD RASMUSSEN, the Danish Arctic explorer, had conferred upon him the doctorate of laws, by the University of St. Andrews on October 7. *Science*.

DR. LOUIS SHOTRIDGE, Chilkat Indian and assistant in the American section of the University of Pennsylvania Museum, has returned to Philadelphia after five years of ethnological research work in Alaska. *Science*.

DR. WALTER E. ROTH of the Christianburg Magistrate's Office, Demerara River, writing on June 8th, 1927, encloses an article from *The Daily Argosy* (Georgetown, British Guiana) of May 22, 1927, in which he challenges Mr. A. Hyatt Verrill's article on the Wai Wai in the *Wide World Magazine* of May 1926. According to Dr. Roth the only approach to this people is by water and the sole difficulty is that of finding appropriate timber for suitable boats, the Wai Wai living on the uppermost reach of the Essequibo, a twelve days' boat trip from the head of the Kuyuwinni in country belonging to the Wapishana, their nearest neighbors to the north and west. Ac-

according to Dr. Roth, Mr. Hyatt erroneously describes the women, not the men, as manufacturing hammocks, and a chief as wearing a loin cloth of bark instead of finely woven and dyed cotton. Dr. Roth mentions other inaccuracies and arrives at the conclusion that "Mr. A. Hyatt Verrill has never been to the Wai Wai country or seen its people."

THE SECOND NASHVILLE MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—Section H (Anthropology) held sessions from December 27 to 30. Dr. George L. Collie, director of the Beloit-Logan North African Expedition, exhibited artifacts and skeletons taken from Aurignacian deposits in Algeria and presented the results of recent explorations in that region. The subject of "Race Crossing, Group and Individual Changes," occupied one day, while topics of general anthropological interest were also presented. A session was devoted to the evidences of human occupation of the caves of the Nashville region and to other questions of local archaeology. The dinner for anthropologists was planned for Tuesday evening. The Tulane Hotel, Church St. and Eighth Ave. was the headquarters for anthropologists. *Science*.

PROFESSOR OTTO AICHEL, head of the department of anthropology at the University of Kiel, has undertaken a research expedition to Chile. Later he will go to Peru and Bolivia.

—*Science*

J. ERIC THOMPSON, of the Field Museum of Natural History, has left for British Honduras, as the head of an expedition which will investigate the civilization of the ancient Maya Indians.

—*The Museum News*

J. WALTER FEWKES retired as chief of the Bureau of American Ethnology of the Smithsonian Institution on January 15. Dr. Fewkes first came to the Institution in 1895 and was appointed chief of the Bureau in 1918.

—*The Museum News*

THE CENTRAL SECTION of the American Anthropological Association held its 1928 meeting at Beloit, Wisconsin, on March 2 and 3.

TULANE UNIVERSITY is planning an expedition to unexplored regions of Central America and Mexico, according to an announce-

ment by Franz Blom, acting head of the department of Middle American research, of the university.

—*The Museum News*

THE CHIPPED STONES from the seacoast of Sligo, Ireland, which were recently described by the British archaeologist J. P. T. Burchell as implements made by early Stone Age men, have become the subject of scientific controversy. A committee of Dublin investigators, R. A. S. Macalister, J. Kaye Charlesworth, R. Lloyd Praeger and A. W. Stelfox, have reported to *Nature* that they have investigated the caves on the Irish coast and find that they are apparently of a much later date, geologically, than the Old Stone Age. They declare further that the chipped stones in question are of limestone, a most unsuitable material for implements, and that they can not find any evidence that the chipping is the result of anything but accidental fracture.

THE SHIPMENT from China of scientific specimens obtained by archaeological and other scientific research expeditions has recently been strictly limited as a result apparently of an increasing nationalistic spirit.

WE NOTE with great regret the death of Professor W. C. Mills of the Ohio State University, Columbus, Ohio, on January 17th.

IMMANUEL MOSES CASANOWICZ, assistant curator of Old World anthropology in the United States National Museum, died on September 26, 1927, at the age of seventy-four. He was born in Russia in 1853 and was educated in Switzerland and at Johns Hopkins University. He taught Latin and Greek while in Switzerland and became instructor in Hebrew and church history in the German Theological School, New Jersey. He joined the staff of the United States National Museum in 1892.

—*The Museum News*

A SUMMARY REPORT OF FIELD WORK AMONG THE HUPA, SUMMER OF 1927

Dr. E. Sapir spent the end of June, July, August, and the beginning of September, 1927, in a linguistic investigation of the Hupa Indians, who occupy a reservation in the valley of the Trinity river in northwestern California. This work was done under the auspices of the

Department of Sociology and Anthropology of the University of Chicago. A number of good informants was secured, chief among them being Sam Brown, who served as the most important source of material and as interpreter of everything obtained from him and others. The information gathered was chiefly linguistic in character but a large body of ethnological material was also obtained, partly in the form of texts and partly as notes directly communicated in English.

The linguistic material was chiefly obtained as part of a programme for the comparative study and reconstruction of the Athabaskan languages. A careful study was made of the grammatical structure of Hupa, which offers many difficulties, and a reasonably complete vocabulary was obtained. The texts, which number about seventy-five were so chosen as to duplicate as little as possible the valuable material already published by Dr. P. E. Goddard. They are pre-eminently ethnological in content.

Some of the main results secured from the study of the Hupa language may be mentioned here. The sound system, as might have been expected, proved to be much more complex than hitherto represented and more in accordance with the typical Athabaskan patterns worked out for Sarcee, Kutchin, and Navaho. The old Athabaskan *k*-series (intermediate *g*, aspirated *k'*, and glottalized *k̥*) is represented in Hupa by a velar series (*g*, *x*, and *'q*), but the old prepalatal series (*ɟ*, *k'*, *k̥*) is preserved as such. Curiously enough, Hupa has also developed a new series of *k*-sounds which are neither velar nor prepalatal but mid-palatal (*g*, *k'*, *k̥*). These do not represent the old Athabaskan series of *k*-sounds but are the diminutive form of the prepalatal set. The sounds *s*, *ts*, *'ts* represent not only the old Athabaskan *s*-sibilants but also the diminutive form of the Athabaskan *c*-series (in Hupa terms: voiceless *w*, *tcw̥*, *'tc*). Vocalic quantity proved to be of fundamental importance for the understanding of Hupa morphology. This is true also of the use of the glottal stop and of final aspirations. Many final consonants are glottalized and there is a characteristic and probably archaic difference between non-syllabic final consonants and consonants which have half-syllabic value. This difference is responsible for the parallelism of "light" and "heavy" syllables, a distinction which had already been worked out for other dialects.

The old Athabaskan tone system, which can be reconstructed in large part from striking resemblances in the tone patterning of Sarcee, Kutchin, Navaho, and no doubt by many other northern and

southern dialects as well, no longer appears in Hupa. Mr. Li's researches prove the same loss of tone for Mattole and Wailaki. Later investigation may disclose the fact that the absence of tone is one of the distinguishing characteristics of the Pacific (or perhaps only southern Pacific) group of Athabaskan dialects. There are, however, interesting tone cadences in the relative forms of Hupa verbs which are most easily explained as survivals of older forms with a high tone on the final syllable, such as we actually find in Sarcee and Navaho.

The morphology was completely overhauled. Owing to a faulty phonology the details and some of the fundamentals of Hupa structure had not been fully grasped in former works on Hupa. The relative forms of the verb, which are as important here as elsewhere in Athabaskan, had not been properly kept apart from the non-relative forms. Owing to this fact the whole verbal system needs to be presented in a new light. The so-called "past definite" is merely a special use of the relative form of the perfective (Goddard's "present definite") and is paralleled by analogous relative forms based on the imperfective ("present indefinite") and on the continuative. The aspect system of Hupa needs to be revised also in other respects. The formation of the continuative (as part prefix and stem form) is entirely analogous to its formation in other dialects. A distinct permissive paradigm must be recognized not only for the third person but also for the first. A distinct potential mode was discovered. There are also special modal forms for the verbal abstract and for the prohibitive. In none of these cases is reference merely had to the use of certain prefixed or suffixed particles. As in Navaho, a number of verbs distinguish durative and momentaneous stem forms of the imperfective.

Since this report was first written, P. E. Goddard has published a paper entitled, *Pitch Accent in Hupa*, (Univ. of Calif. Publ. Amer. Arch. Ethn., 23: 333-338, 1928), in which it is shown that a study of Hupa tracings fails to show that Hupa syllables have inherently high or low tones. This is entirely in accord with Sapir's auditory record for Hupa and quite opposed to his auditory record for certain other languages of the Athabaskan groups, particularly Sarcee, Kutchin, and Navaho. A small amount of independent material obtained on Anvik (Chapman's "Ten'a," also known as Ingalik) indicates that here too tone is lacking.

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CULTURE AREAS IN MADAGASCAR

BY RALPH LINTON

PRACTICALLY all the authors who have written on Madagascar have assumed a priori that the native culture is uniform throughout the island. One constantly meets with statements that "the Malagasy" believe or do such and such a thing when actually only a single tribe or even gens has this practice or belief. This error is probably due to the great size of the island and the fact that very few Europeans are familiar with it as a whole. I have myself been guilty of stating that the culture was surprisingly uniform, being deceived by the fact that my first year's work was carried on almost entirely within a single culture area. I can only offer in extenuation that the article in question ("Report on Work of Field Museum Expedition to Madagascar," *AMERICAN ANTHROPOLOGIST*, n.s., 29: 292 sq.) was not written with a view to publication. The information in this paper was collected by the Captain Marshall Field Madagascar Expedition; published by courtesy of Field Museum of Natural History.

There appear to be three fairly well marked culture areas in Madagascar, with the usual marginal tribes of mixed culture. (See fig. 1.) These areas, which agree in a general way with the main geographic and climatic divisions of the island, are as follows:

1. The East Coast, with a partial subdivision into a northern part, occupied by the Betsimisaraka tribe, and a southern part occupied by a number of small tribes commonly, but incorrectly, grouped under the term Antaimorona.
2. The Plateau, occupied by the Betsileo, Imerina (commonly called Hova) and Sihanaka.

3. The West Coast and Extreme South, occupied by the Sakalava, Mahafaly, Antandroy, and Bara.

The Tanala and Bezanozano tribes are intermediate in culture between areas 1 and 2, while the Tsimahety and Antankarana in the extreme north and the Tanosy in the southeast seem to be intermediate between areas 1 and 3.

AREA 1. THE EAST COAST

GEOGRAPHY, CLIMATE, ETC.

This area extends nearly the whole length of the island, about 1000 miles, and is bounded on the west by the divide separating the eastern slope of the mountains from the interior basin. In the north the hills come down almost to the sea and the coast is rocky and broken, with one natural harbor at Antongil bay. As one goes southward the strip of level land along the coast becomes wider and the shore is a continuous sand beach. There are many rivers, but their mouths are invariably blocked by bad bars and the surf is high during most of the year. In many places there are lagoons and swamps behind the beach. Except in the extreme north, the soil of the coastal strip is uniformly poor and sandy. In the north heavy tropical jungle comes down to the sea's edge, but the growth decreases in density as one goes southward. There is everywhere a sufficiency of good timber. The climate is hot and humid, and rains come at all seasons but are heaviest in the north. Fever is prevalent throughout the area and takes a heavy toll of plateau natives and whites.

MATERIAL CULTURE

Villages.—All the inhabitants live in villages, isolated dwellings being unknown. These were formerly protected by stockades of pointed logs, without ditches. The houses within the village are arranged in groups occupied by close relatives, as a man and his married sons.

Houses.—Houses are rectangular, and of fairly large size, with rather heavy wooden frames and walls of midribs of the traveler's tree or of flattened bamboos woven in checkerwork. All houses are raised on posts, 1 to 5 feet high, and floored with

flattened bamboos or split trunks of the traveler's tree. There are no beds or other furniture.

Granaries.—Granaries are built beside the dwelling. They are small gable-roofed houses raised on high wooden posts having a collar at the top to keep out the rats.

Clothing.—Men's costume consists of a smock-like garment, sleeveless and reaching to slightly above the knee. In the south of the area this is said to have originally been a poncho, open at the sides. It is often carefully fitted and may have a pocket. The loin cloth is not worn. Women wear a straight, tubular garment reaching from armpit to knee. This is held in place by a broad belt with a matting pocket in the middle of the back. The top is folded down over the belt when working. A brassier, or short, tight sleeveless jacket, is now worn but may be an innovation. Both sexes wear close-fitting, brimless caps of matting. Garments are made of raffia cloth in the north and of fine pliable matting in the south. Bark cloth was formerly used for the women's belts and occasionally for other garments. All married women employ the *baby cover*, a small mat which is hung over the back by a cord about the woman's neck and covers the infant when carried on the back.

Exposure.—Exposure is common and the natives pay little attention to it, in sharp contrast to those of the other two areas. Men often remove the smock when working in water, and children of both sexes may go nude to eight or nine years.

Ornaments.—They are little worn and are limited to rings, earrings, bracelets, and necklaces. The last two practically always have a charm value if worn by men. The ears of both sexes are pierced, but the lobe is not enlarged.

Hairdressing.—This is simple. Men's hair is usually cut short, women's done in a number of braids fastened close to the head.

Tattooing.—This occurs in both sexes, but is scanty and without significance.

Spinning and weaving.—With one exception, spinning and weaving are done by women everywhere in Madagascar. Among the Antaisaka in the southern part of the area men both spin and weave. Elsewhere in the south the spindle is employed by men

for twisting fish lines, but there is no weaving. The Betsimisaraka weave fine raffia cloth of untwisted fiber, but are unable to spin. Their looms are horizontal, without belts, and are raised 2 or 3 feet above the ground. A treadle attachment has been introduced in recent times. The only designs are plain stripes.

Bark-cloth.—It is made by all tribes, but the pieces are usually small and of inferior quality. It is now used only for women's belts but complete garments were once made from it in the south. The bark is beaten with a round transversely grooved club without removing it from the sapling. When half finished it is pulled off like a sleeve, and left for a time in a damp place, then beaten again.

Mats.—Mats are used as clothing by all the southern tribes. They are woven from a tough sedge and kneaded under water to render them flexible. Sleeping mats, food mats, floor mats, etc., are woven from a variety of materials, but the work is usually coarse with little decoration.

Baskets.—Baskets are made by the mat technique, coiled basketry, being unknown. Only a few forms are used and the work is coarse with little decoration.

Pottery.—This was almost lacking in the area, food being boiled in green bamboos. This may be due to a lack of suitable clay as it was known and imported from the interior tribes. Iron pots are now in universal use.

Utensils.—In the north food is served on mats or in leaf dishes and eaten with leaf spoons, the service being renewed for each meal. In the south wooden bowls and spoons are used. Some of the bowls are well made and are decorated with a hot iron point applied on the compass principle. Gourds are rare and highly prized and are cleverly imitated in wood.

Agriculture.—Agriculture is universal in Madagascar. The northern staple is maize, which is cracked in deep narrow mortars and boiled. Rice of both the wet and hill varieties is also grown in this region with a little taro and sweet potatoes. In the south the staple food is rice of the wet variety. In both places the rice is planted in naturally swampy ground and there are no extensive terraced systems. No manure is used and the cultivation is primitive. There are no seed beds. The rice is headed and stored in

the granaries unthreshed, a little being beaten out as needed. There are no threshing floors. Rice is hulled in large wooden mortars with a heavy pestle, and boiled.

Domestic animals.—The ancient domestic animals were cattle, chickens, and perhaps ducks and geese. Goats, pigs, and dogs were known, but were taboo to most of the tribes. Sheep appear to be recent. Cattle are nowhere numerous and are economically unimportant. At night they are driven into fenced pens, which are often roofed. Milk is a rare luxury and is drunk fresh or boiled with rice. Cattle are considered a sign of wealth and considerable prestige attaches to the ownership of a large herd. Only cattle and chickens are sacrificed and the animals are rarely killed for any other purpose.

Hunting.—Hunting is unimportant, although some tribes catch or shoot the lemurs and wild pigs. The latter are taboo to several gentes.

Fishing.—This is important and is carried on both in the rivers and at sea. Fish spears are single-pointed with a barb. Iron hooks and bone gorges are employed, the latter only with set lines. There are dip nets and seines and a variety of fish traps. One species of fish is lured within spearing distance with cleverly made wooden decoys.

Canoes.—The outrigger is unknown. River canoes are simple dugouts. Sea-going canoes are dugouts in the north, plank canoes sewn with fiber in the south. Sails appear to be a recent innovation. Northern paddles have short, almost circular blades, southern ones long narrow blades. Both have cross grips.

Metal-working.—This is poorly developed. The Malay type of piston bellows is used everywhere in Madagascar. There is no smelting, and the local tools, etc., are roughly made. Casting and inlaying are unknown and there is no ornamental ironwork. A few silver bracelets are made locally, being incised with simple designs.

Weapons.—The principal tool and weapon is the axe, which has a cleaver-like blade attached to the handle by a horizontal tang. The eyed axe was unknown. Next in order of importance are spears, long, single-bladed swords, straight or slightly curved,

short knives, and round shields of wood covered with hide. The sling is little used and the bow is a toy. The blowgun with poisoned darts is used in the north, elsewhere there is no poison and it is used only for small birds. The poison does not injure the game as food.

SOCIAL ORGANIZATION

In the northern part of the area the social organization has broken down under long European contact and vassalage to the Imerina empire. It seems to have originally been much like that which continued in force in the south until the French conquest. There the basis of both social and political organization was the gens, a group of persons who claimed descent from a single ancestor in the male line. Each gens occupied a definite territory and had its own chief and Lahy Kibory (guardian of the gens tomb). New gentes arose by natural fission when the group grew too large for its territory or was split by internal disputes. The chieftainship was vested in the family which had the most direct descent from the common ancestor, tracing through eldest sons. The office of Lahy Kibory, which was of almost equal importance, might be vested in this family and held by a younger brother of the chief, but was usually vested in the family of next highest descent. The tribe was a rather loose agglomeration of gentes which occupied contiguous territory and had been brought together by conquest or voluntary submission. The latter was quite common in the case of weak gentes. Apparently gentes sometimes seceded from one tribe and joined another. Within the tribe the gentes are organized in three grades: a royal gens, which stood at the head, one or more noble gentes with special privileges, such as the exclusive right to kill cattle, and the common gentes which formed the bulk of the population. The hereditary chief of the royal gens was the tribal king, and families from this gens often imposed themselves as chiefs on the minor gentes. Both royal and noble gentes occupied definite areas within which their members performed all the usual functions, cultivating their own land, etc. No gens paid tribute to another, so the economic value of royal or noble birth was slight. Royal

gentes acquired their rank by fighting ability and acted as a sort of police force, preventing fighting among the inferior gentes and protecting them from outsiders. If they became weak or ruled oppressively, some other gens would oust them from the leadership, but they would retain certain privileges and be classed as nobles.

Kings.—The king was the social and political head of the tribe. As a prince he was expected to distinguish himself in battle, but when king he rarely acted as war leader. His main functions seem to have been judicial, and he acted as a supreme court to which one might appeal from the judgment of the gens chiefs. In most tribes he held the exclusive right to condemn to death. His judgment was final, and evasion or even criticism was punished by a fine for contempt. His revenue was derived from fines paid by criminals, including all persons who violated any of the long series of taboos connected with the royal person and property. Evil kings often executed rich commoners on false charges, to get their property. No regular taxes were paid for the king's support, but he could call on the commoners for necessary labor.

Nobles.—The nobles seem to have taken little or no part in the government, possibly because of royal jealousy.

Mpifasana.—The Mpifasana were commoners who lived in the royal villages and served the king as courtiers, messengers, etc. They were usually drawn from a single common gens and possessed great power in the government. They remained commoners, however, and the king could deprive them of their privileges at will.

Slaves.—Slaves stood at the bottom of the social order and consisted of prisoners of war, certain classes of criminals, and their descendants. First generation slaves were sold like any other chattels, but members of slave families came in time to be considered members of the gens, although without social standing. In at least some cases they owned property and differed little from poor freemen. All slaves were forbidden to bear arms.

Marriage.—Marriage is normally exogamous, although marriage within the gens may be compounded by a fine to the Lahy Kibory. The family is patrilocal. The marriage is arranged by

the young people themselves, the son notifying his father, who then makes formal application to the girl's father. A small sum is paid to the girl's parents, not as the price of the girl but as that of her potential children. If the girl later deserts or is divorced, the price is not returned, but all children belong to the father's gens. If it has not been paid the marriage is not legal and all children belong to the mother's gens. Marriages between the different castes were not prohibited, except in the case of slaves, but were discouraged. The child's rank followed the father's.

Polygamy.—Polygamy is common, chiefs and rich men having as many as six wives. The first wife is head of the family and her permission is necessary for subsequent marriages. Each wife has her own house and share of the family land, from which she supports herself and her children. The husband spends stated days with each wife, being fed by her and working on her land.

Polyandry.—This is unknown except in cases where two men in making blood brotherhood have agreed that even their wives shall be held in common.

Chastity.—Chastity before marriage is highly valued by the southern tribes and girls usually remain virgins until married. There are some exceptions, however, and the Betsimisaraka lay little stress on this. After marriage all tribes punish the wife's adultery with divorce.

Divorce.—This is at the will of the husband, but the wife may divorce him if he has relations with a woman other than a plural wife during the wife's pregnancy, or has relations with her during a stated period after the birth of a child. The period is usually six months for a boy or three for a girl. The wife never receives any of the husband's property.

Property and inheritance.—Waste land was held by the gens and used by all members for grazing, wood-cutting, etc. Cultivated land belonged to the family who had brought it under cultivation. It could be sold within the gens, but not to outsiders. In the family all property except the wife's clothing and personal property belong to the husband. At his death barren wives receive nothing, others unequal shares, the largest going to the first wife. These shares they, in turn, divide among their children. Daughters

rarely receive land or cattle, as both are too valuable to be allowed to pass out of the family.

RELIGION

Ancestor worship.—It is the basis of religion everywhere in Madagascar. The ancestral ghosts are believed to be ever present and to take an active part in the affairs of their descendants, aiding them and also sending illness or misfortune if displeased. One worships only one's own ancestors.

Zanahary.—This is a name given to a power above the ancestors, from whom they derive their powers. In this region Zanahary is poorly personified and the natives are not sure whether he is one or many. Some claim that every gens, person, and even animal has its own Zanahary. He is mentioned in all sacrifices to the ancestors, but is never sacrificed to a'one, and no prayers are addressed directly to him except where there is Arab or Christian influence. He is the source of both good and evil. Dualism is lacking.

Non-human spirits.—They are believed to exist, but the ideas in regard to them are hazy and they are never prayed or sacrificed to.

Sacrifice.—Sacrifice is the essence of all religious practices. All prayers are accompanied by sacrifices or vows to sacrifice. Ordinary sacrifices are performed in the home by the head of the family. Important ones are made at posts erected for the purpose in the north or at the tomb in the south. Each gens has its hereditary sacrificial priest. In the north the office may be held by a woman, but if so she will usually delegate her powers to a man. Here the *ombiasy* (medicine man) often acts as director of ceremonies and may introduce changes in ritual, but never sacrifices himself. In the south the sacrifices are performed by the *Lahy Kibory*, the ombiasy taking no part.

Sacred places.—They are practically non-existent, except for the tombs

Sacred rivers.—Every tribe in the area, except the Betsimisaraka, has a sacred river into which the umbilical cords of all children are thrown. Unless this has been done the person is not

a member of the tribe and is forbidden burial in his gens tomb. Tombs are usually built near this river, drought and flood sacrifices are performed at its mouth, and it is used in the crocodile ordeal, etc. If a gens moved to a new locality it took water from its sacred river and baptized the new river by the old name.

Ombiasy.—This is the name for medicine men, who are everywhere important. In the north they may be either men or women, and sometimes are under the control of ancestral spirits. In the south they are always men and are not under spirit control. There they derive their powers from having been instructed by some other ombiasy in the *Vintana* (calendar of lucky and unlucky days), *Sikidy* (divination by geomancy), and formulae for making charms. The highest class practice a form of astrology. They are not organized or graded except in popular esteem. There is everywhere a clear line between the ombiasy and sacrificial priest.

Sorcerers.—They are greatly feared and put to death when discovered. They are refused admission to the tomb and their bodies may even be burned. They are not organized.

Possession.—Possession, usually by the soul of an ancestor or dead chief, is common in the north. It now exists in the south, but is said to be an innovation of Sakalava origin. In the north there are regular practitioners who answer questions, give cures for illness, etc. These are usually women. Real ombiasy are never possessed.

Charms.—They are made for every possible phase of activity and are universally worn and used. They are compounded according to strict formulae. The source of the power they confer is vague in the native mind.

DISPOSAL OF THE DEAD

In the northern division the dead are placed in large wooden coffins and left in village cemeteries, which are hidden in the deep woods. Earth burial is rare except in the region of Mananjary. Among the southern tribes each gens has a single tomb, the *Kibory*, in which all members, even the chief, are placed. The form varies, but it is commonly a deep ditch running in a north and south direction with a division across the center. Men are

note. Women's ears were pierced and one gens of the Imerina expanded the ear lobe.

Hairstyle.—Hairstyling was very elaborate for women, the hair being divided into a great number of braids, which were arranged in different ways. Men anciently wore the hair in a number of small knots or hanging braids.

Tattooing.—This was rare except among the south Betsileo, where women were often tattooed on arms and with a broad collar across the chest. This was done after marriage and was considered a mark of distinction.

Spinning and weaving.—They are universal and highly developed. The Betsileo did not use the spindle in ancient times, rolling the thread on the thigh. The loom is horizontal and very low. A form of belt loom with a wooden back rest was formerly used by the Betsileo, but all modern looms are fastened to pegs driven in the earth. A great variety of materials were employed, banana fiber, bast, hemp, cotton, wild silk, and raffia. The last was boiled with lye and twisted into thread. Among the Imerina a native species of silkworm was semi-domesticated. The Imerina do some figure weaving, and one gens formerly knew the warp-dyeing process. Elsewhere the designs were simple stripes.

Bark cloth.—It was known but rarely used. A hammer-shaped mallet was used.

Mats.—They are used primarily as floor covering. Many of them are finely woven and decorated with a variety of designs. The Sihanaka weave the finest, and their designs are named, a trait lacking elsewhere in Madagascar.

Basketry.—Basketry is well developed. Most of it is of matting technique, but there is a limited use of coiled basketry, most pronounced among the Sihanaka, and twining is used for fish scoops, etc.

Pottery.—This is well developed and is made by coiling with very wide strips of clay or by modeling from a cylindrical lump. Glaze was unknown, but red and cream slips were employed, also graphite. The Betsileo made a little painted ware, but most decoration was incised or modeled. The vessels are well fired. The art is now disappearing.

Utensils.—They are mostly of pottery; but large bowls are made of wood, and spoons of wood, horn or bone. Food mats are unknown. Gourds are used as bottles. Small double mortars, sometimes of fantastic shapes, are used for crushing salt and pimentoes. Except among the east Betsileo, wooden utensils were rarely decorated.

Agriculture.—The staple food is rice of the wet variety, which is raised in elaborate terrace systems, sometimes of great extent in the south. Fertilizers are used, and the soil is carefully prepared. Seed beds are made and the young plants transplanted by women. The rice is harvested with the straw and carried to threshing floors, flat clay-floored areas having a large bench-shaped stone in the center. It is beaten out against the stone, winnowed and stored. The straw is used for thatching or fuel. Maize, manioc, millet, beans, squashes, ground-nuts, sweet potatoes, taro, and greens are raised but are incidental to the rice diet. In the south a variety of sedge for mat-making is cultivated.

Domestic animals.—The ancient species were cattle, sheep, goats, pigs, dogs, and possibly the native wild cat, also chickens, ducks, and geese. Only cattle and chickens were sacrificed. Cattle are numerous but economically unimportant. They are kept in semi-subterranean pens excavated in the hard soil. Milk is a luxury and is boiled at once, then drunk or used to cook rice. Animals are only killed as sacrifices or at funerals. They are important in the ceremonial life, certain rites being performed in the cattle pit, the umbilical cord sometimes being fed to a cow, etc. Formerly fighting bulls was the principal native sport.

Fishing.—This is unimportant except near the lakes. Appliances are the same as in area 1, except for the fish decoys, which are lacking.

Canoes.—Canoes are simple dugouts. Outriggers and sails are unknown. The Sihanaka employ a distinctive form of paddle with a wide, flat shaft.

Metal-working.—This is fairly well developed, the iron being smelted locally. Casting and inlaying are unknown, but most tools show a good finish and the Betsileo do fine ornamental iron-work, twisting the bars and bending them into graceful forms.

placed in the north half, women and children in the south. The ditch is surrounded by a stockade and a house is usually built over it. At a death all the old corpses are removed and the new dead put at the bottom. The Kibory is surrounded by a grove which can only be approached by the Lahy Kibory or those whom he appoints. Natural caves or houses without the ditch are also used.

Souls of the dead.—They reside at the tomb or cemetery, where they form a community exactly like one on earth. There is no belief in reincarnation, but there is an idea that the souls of certain gentes enter animals. This is rare and its extent could not be determined.

Lahy Kibory.—The Lahy Kibory is an hereditary official who has charge of everything pertaining to the Kibory. He also acts as sacrificial priest and as judge in offenses against custom, as incest, receiving the fines levied.

Menhirs.—Menhirs are raised by the southern tribes, but not by the Betsimisaraka. They are raised beside roads, etc., far from the tomb, and those of the same family are usually grouped together.

AREA 2. THE PLATEAU

GEOGRAPHY, CLIMATE, ETC.

This area includes the whole central portion of the island at an average elevation of about 3,000 feet. It is bounded on the east by higher mountains which cut off much of the rain. The country is rolling, with little level ground except in the bottoms of river valleys, and has been completely deforested. It was at one time at least partially forested, for large timber is still found buried in river bottoms. There are few navigable streams and only two lakes of any size. The soil is rich and the climate good, with seasonal rains. The summer is not excessively hot, and there are often frosts in winter. Malaria is now common, but was not present in early times.

MATERIAL CULTURE

Villages.—They were built on hilltops and were always elaborately fortified. The use of stockades was taboo to all except

chiefs. The defenses consisted of from one to nine enormous concentric ditches, straight-sided, and sometimes as much as 30 feet deep with a wall or, in the south, cactus hedge on the inside. The Imerina had a peculiar form of gate made from a round stone, like a millstone, which was rolled back and forth. With the establishment of the Imerina empire many towns were abandoned, the people now living in groups of two or three houses scattered over the countryside.

Houses.—They were formerly built of heavy vertical timbers mortised into cross-beams at top and bottom. They were rectangular with steep roofs, and those of chiefs had long projecting horns at the gables. The very poor made houses of rushes, which are still in use among the Sihanaka. Elsewhere most houses are now of sun-dried brick or rammed earth. Houses were often built on low stone-faced platforms, but never raised on posts. The aversion to this is so strong that among the Sihanaka, many of whose villages are inundated annually, a floating floor is built inside the house rising and falling with the water. Floors are normally of earth. The Imerina and Betsileo used large wooden beds, built as a part of the house, and stools of wood of matting like pillows.

Granaries.—Granaries are bottle-shaped pits, often as much as 10 feet across and 10 feet deep, excavated in the hard clay soil. In these the rice is stored after threshing. Where the soil is wet, conical mud granaries are built with a side opening near the top. The Sihanaka use no granaries, stacking their rice.

Clothing.—Clothing consisted of a loin cloth for men and a knee-length kilt for women. A brassier or sleeveless jacket for the latter seems to have been introduced in early times. Both sexes wore the lamba, a large oblong blanket or shawl made from two or more strips of cloth sewn together. Men wore close caps of basketry, hide or lemur skin; women went bare-headed. All clothing was of cloth. The baby cover was not used. European clothing is now universal.

Exposure.—This is avoided by both sexes, and only small infants go nude.

Ornaments.—Women wore few ornaments and men almost

none. Women's ears were pierced and one gens of the Imerina expanded the ear lobe.

Hairdressing.—Hairdressing was very elaborate for women, the hair being divided into a great number of braids, which were arranged in different ways. Men anciently wore the hair in a number of small knots or hanging braids.

Tattooing.—This was rare except among the south Betsileo, where women were often tattooed on arms and with a broad collar across the chest. This was done after marriage and was considered a mark of distinction.

Spinning and weaving.—They are universal and highly developed. The Betsileo did not use the spindle in ancient times, rolling the thread on the thigh. The loom is horizontal and very low. A form of belt loom with a wooden back rest was formerly used by the Betsileo, but all modern looms are fastened to pegs driven in the earth. A great variety of materials were employed, banana fiber, bast, hemp, cotton, wild silk, and raffia. The last was boiled with lye and twisted into thread. Among the Imerina a native species of silkworm was semi-domesticated. The Imerina do some figure weaving, and one gens formerly knew the warp-dyeing process. Elsewhere the designs were simple stripes.

Bark-cloth.—It was known but rarely used. A hammer-shaped mallet was used.

Mats.—They are used primarily as floor covering. Many of them are finely woven and decorated with a variety of designs. The Sihanaka weave the finest, and their designs are named, a trait lacking elsewhere in Madagascar.

Basketry.—Basketry is well developed. Most of it is of matting technique, but there is a limited use of coiled basketry, most pronounced among the Sihanaka, and twining is used for fish scoops, etc.

Pottery.—This is well developed and is made by coiling with very wide strips of clay or by modeling from a cylindrical lump. Glaze was unknown, but red and cream slips were employed, also graphite. The Betsileo made a little painted ware, but most decoration was incised or modeled. The vessels are well fired. The art is now disappearing.

Utensils.—They are mostly of pottery; but large bowls are made of wood, and spoons of wood, horn, or bone. Food mats are unknown. Gourds are used as bottles. Small double mortars, sometimes of fantastic shapes, are used for crushing salt and pimentoes. Except among the east Betsileo, wooden utensils were rarely decorated.

Agriculture.—The staple food is rice of the wet variety, which is raised in elaborate terrace systems, sometimes of great extent in the south. Fertilizers are used, and the soil is carefully prepared. Seed beds are made and the young plants transplanted by women. The rice is harvested with the straw and carried to threshing floors, flat clay-floored areas having a large bench-shaped stone in the center. It is beaten out against the stone, winnowed, and stored. The straw is used for thatching or fuel. Maize, manioc, millet, beans, squashes, ground-nuts, sweet potatoes, taro, and greens are raised but are incidental to the rice diet. In the south a variety of sedge for mat-making is cultivated.

Domestic animals.—The ancient species were cattle, sheep, goats, pigs, dogs, and possibly the native wild cat, also chickens, ducks, and geese. Only cattle and chickens were sacrificed. Cattle are numerous but economically unimportant. They are kept in semi-subterranean pens excavated in the hard soil. Milk is a luxury and is boiled at once, then drunk or used to cook rice. Animals are only killed as sacrifices or at funerals. They are important in the ceremonial life, certain rites being performed in the cattle pit, the umbilical cord sometimes being fed to a cow, etc. Formerly fighting bulls was the principal native sport.

Fishing.—This is unimportant except near the lakes. Appliances are the same as in area 1, except for the fish decoys, which are lacking.

Canoes.—Canoes are simple dugouts. Outriggers and sails are unknown. The Sihanaka employ a distinctive form of paddle with a wide, flat shaft.

Metal-working.—This is fairly well developed, the iron being smelted locally. Casting and inlaying are unknown, but most tools show a good finish and the Betsileo do fine ornamental iron-work, twisting the bars and bending them into graceful forms.

Weapons.—The axe was usually of cleaver type as in area 1, but the eyed axe was also used. Other arms were like those of area 1 except that the shield was larger and the sword rather than the spear was the principal weapon. The sling was important. Blowguns without poison and bows were used by children for hunting.

MARKETS

Markets were introduced by the Imerina empire, but are now characteristic of the area and important. They are arranged in a cycle, each town within a given area having its day. Most trade is carried on in them.

SOCIAL ORGANIZATION

The organization seems originally to have been not unlike that of area 1, but later the kingship was strengthened and became a family rather than gens matter. The king was considered owner of the tribal land and gave estates to brothers and favorites who sublet it to tenants, establishing a sort of feudal system side by side with the old arrangement. The complex organization of the later Imerina empire was due to European influence and is omitted.

Kings.—The king was an absolute monarch with complete power over the lives and property of his subjects. Actually he exercised these rights with discretion, as there were always claimants for the throne. He was supported by a ground rent, usually in the form of an offering of first-fruits made by all cultivators, by various fees, and by a share of fines levied. He served as supreme court as in area 1, and took no part in war. He could demand forced labor from his subjects, and this was carried to extremes in Imerina.

Nobles.—They took little part in the governmental activities, nearly all offices being filled by commoners, who could be deposed at will. These officials, together with persons to whom estates had been given, formed a sort of new aristocracy outside the old system.

Slaves. They were divided into two classes, foreign slaves, who were treated as chattels, and slaves belonging to the owner's

tribe, who were known by a special name and had many rights and privileges. Established slave families of this sort might own property, have their own tombs, bear arms, and accompany their masters to war.

Marriage.—Marriage was endogamous among the Imerina and Sihanaka, exogamous among the true Betsileo. The Imerina in particular practised very close intermarriage to keep property in the family. Half-brother and sister by different mothers could marry, and the children of two brothers or brother and sister were expected to marry. Children of two sisters, or their descendants in the female line, were absolutely forbidden to marry. Although the family was patrilineal, in marriages between castes the child took the mother's rank. The Betsileo forbid marriage between persons having a common ancestor within four generations on either the male or female line of descent. If such an ancestor is discovered, the marriage will be dissolved even if of several years' standing. Formalities of marriage, significance of the bride price, etc., are much the same as in area 1.

Polygamy.—This was common, but the rights and duties of the various wives seem to have been less clearly defined than in area 1.

Polyandry.—This existed in the case of blood-brothers. A man who expected to be absent for some years might permit his wife to contract a second marriage, but this was dissolved on his return, and any children born belonged to him.

Chastity.—Chastity before marriage was little valued, and the moral standard was markedly lower than among the southern tribes of area 1.

Divorce.—This was at the will of the husband except for the reasons stated in area 1. A wife divorced without good cause had certain property rights, however, amounting in Imerina to one-third of the husband's wealth.

Property and inheritance.—All land was considered the property of the king, others holding under him. Even waste and grazing land was held in severalty, although usually by families rather than individuals. Royal permission, given for a small fee, was necessary for land transfer within the tribe and only the

king could sell it out of the tribe. Family property belonged to the husband, but he had no right over his wife's inherited property, which might be considerable. This passed directly to her children. Inheritance was variable, but in general barren widows received nothing, other widows sharing in proportion to the number of their children rather than their rank. Daughters usually received less than sons, but there was no fixed rule.

RELIGION

Ancestor worship.—This was the strongest element in the religion, but there were certain features peculiar to the area.

Andriamanitra.—This was the name given to a supreme being who stood above all other beings and from whom they derived their powers. He was also called Zanahary, the two terms being used to describe aspects of the same being. He was more clearly personified than in area 1 and was single, but it is improbable that he was prayed or sacrificed to alone.

The Vazimba cult.—The Vazimba cult was based on the belief that the present inhabitants of the plateau area were preceded by an earlier race whom they conquered and expelled. The souls of this race became a sort of genii loci associated with springs, caves, rocks, etc., and certain spots where the grass grew in a peculiar way, cairns, or artificial arrangements of stones were believed to be their tombs. Although the Vazimba were of human origin, they had lost their human attributes in the popular mind and never appeared as ghosts. They were very powerful and in general malevolent, but would also help their worshippers. Certain of the local ones had their priests who received offerings for them and derived certain powers from them, acting as both ombiasy and priest. Certain of the Imerina gentes claimed Vazimba descent, but the Vazimba cult was practised by all. Among the Betsileo the same beliefs were held, but less strongly, and there were no Vazimba priests. There, however, certain persons would promise before death that they would answer prayers. Cairns were erected in their honor, and they were prayed to by non-relatives as well as relatives.

Idols.—Idols were limited to Imerina and were a late develop-

ment, forming a national religion outside the scope of the original ancestor worship. There were twelve of these, all of foreign origin. Each had its house and its priest who received offerings, and each had certain specific powers or fields of activity. They seem to have been nothing more than very powerful charms.

Sacrifices.—They were performed by the head of the family or by the person who had made a vow, if directed to the ancestors or ordinary Vazimba, or by the proper priest if to the idols or important Vazimba. The Betsileo had gens priests and the Imerina probably had them at one time, but their duties were rather restricted and the post of less importance than in area 1. Ancestor sacrifices were performed in the home or at the tomb. The sacrifice post was not used except by the Sihanaka.

Sacred places.—Sacred places (in connection with Vazimba) were numerous, but the idea of sacred rivers was lacking.

Ombiasy.—They were important and might be either men or women. The Betsileo had two types: Ombiasy Ankazo, who were not under spirit control, owed their powers to instruction by other ombiasy, and were always men; and Ombiasy Andolo, who were chosen by some ghost, had received no regular instruction, and were usually women. The activities and practices of both classes were the same, but the Ombiasy Andolo were held in greater esteem. Both used the Vintana and sikidy, but astrology seems to have been lacking.

Sorcerers.—They are much feared. They are both men and women, and are organized into a secret society. There is believed to be a chief sorcerer in each district who assigns work to the subordinate ones and has a society fund from which fines and bribes are paid. Many sorcerers keep familiars in the form of snakes, owls, or wildcats. Among the Sihanaka they are said to perform a sort of Black Mass, a travesty of Christian rites. Among the Betsileo they are thought to be possessed or controlled by malevolent ghosts.

Possession.—Possession is always by ghosts and is fairly common. There are regular practitioners among the Imerina and Sihanaka. Among the Betsileo possession is considered as malady and the possessed do not give oracles.

Charms.—Charms compounded from various substances are said to be an innovation among the Imerina. They had an elaborate lore of charm beads, some sixty varieties with different attributes being distinguished. The Sihanaka use many compound charms and the Betsileo a few. They are usually made by the ombiasy, but certain individuals who are not ombiasy possess the formulae for and make charms of one or more types.

DISPOSAL OF THE DEAD

Simple earth burial is said to have been practised by the Imerina and Sihanaka in the earliest times. The former also placed the bodies of chiefs in canoes and sunk them in deep lakes or rivers. At present all the tribes place the dead in chamber tombs, often of very large size, which have a rectangular stone-faced platform above. These are always built in prominent places, beside roads, etc. The dead are wrapped in lambas and laid on shelves. From time to time the tombs are opened and the bodies brought out, sunned, and rewrapped in new lambas. Each family has its own tomb and a rich man will build a new one for himself and his descendants.

Souls of the dead go to Mt. Ambondrombe, a real locality, where they live as on earth. They are also thought to be near the tomb and often to visit the sacred corner of the dwelling. The Imerina and Betsileo also believed that the souls of kings went to the sky world, where they became divine. Among the Betsileo and Sihanaka it is believed that the souls of certain gentes pass into animals. The Betsileo think that persons of the royal and noble gentes carry in their bodies through life a small animal or larva, which escapes from the body after death and becomes a snake, if royal, or a crocodile, if noble. Royal bodies were subjected to a sort of mummification to insure its escape.

Menhirs are very important among the Imerina and Betsileo but almost lacking among the Sihanaka. They are primarily cenotaphs erected in memory of some person, but the Imerina also raised them to commemorate great events. They were usually raised in prominent places at a distance from the tomb. Among the Betsileo those of a certain family are usually grouped together.

Sacrifices are sometimes made at them. Among the Sihanaka they are replaced by Teza, tall posts of hard wood forked at the top, which are decorated with the skulls of sacrificed oxen.

ART

Art was better developed than in area 1 but less so than in area 3. The textiles showed a fine sense of color, and the few designs used here and in mat weaving were harmonious. The Sihanaka did good carving in the round, but never carved designs. The Imerina did little carving of any sort. The southeast Betsileo did little carving in the round, but carved their houses, etc., with a variety of designs in low relief. The rest of the tribe rarely carved.

AREA 3. WEST COAST AND EXTREME SOUTH

GEOGRAPHY, CLIMATE, ETC.

To the west and south of the central plateau the island gradually slopes away to sea level, forming a wide sandy plain in the extreme south. Elsewhere the country is broken, but not excessively mountainous. The extreme south is covered with a dense thorny scrub, but as one goes northward this changes to rather open country with clumps of small trees and brush. There are dense forests of low growth in many localities and quite large timber in the river valleys, but nothing approaching tropical jungle. There are a number of large rivers which are navigable for some distance by native canoes. The rainfall is seasonal but light and the climate excessively hot, especially in the south. The soil is, on the whole, poor, and only a few areas can be brought under cultivation, owing to insufficient water. There is a good deal of malaria.

MATERIAL CULTURE

Villages.—Villages are fortified with dense cactus hedges in the south, but are usually open in the north. There are no elaborate fortifications except among the Bara, who probably borrowed the idea from area 2. There are almost no isolated dwellings, and much of the country is deserted, villages being built near water and many miles apart.

Houses.—They are usually of reeds with a wooden framework and are built on the ground, with earth floors. Very small wooden houses of vertical planks with clapboard roofs are used in the extreme south.

Granaries.—Granaries are lacking.

Clothing.—Clothing is much as in area 2 in early times except that on the coast the men often wear a skirt instead of a loin cloth and the lamba is rarely worn in the extreme south. In the extreme south the men usually wear caps of matting or hide, elsewhere both sexes usually go bareheaded.

Exposure.—It is carefully avoided by men, less so by women. Even three and four year old boys wear the loin cloth.

Ornaments.—Ornaments, especially strings of beads, necklaces, and bracelets, are worn in profusion by women, and there is a marked love of bright colors. Ears of both sexes are pierced and the Sakalava of the central region expand women's ear lobes and wear large plugs of silver or gold.

Hairdressing.—This is very elaborate and is nearly the same for both sexes, varying with the tribe. Very fantastic styles have recently been introduced among the Bara.

Tattooing.—This is common, but not elaborate, and both sexes are often marked on the face. It has no significance. Scarification also occurs sporadically throughout the area.

Spinning and weaving.—They are universal but only moderately developed. The spindle is used everywhere. In the north both have become almost obsolete, due to long foreign contact. In the south the loom is long and straight, without rollers, and the weaver works from the side, using a sword-shaped batten with a handle at one end. (Elsewhere in Madagascar the weaver works from the end and uses a simple batten without handle.) The principal material is cotton with a little wild silk. Among the central Sakalava the warp-dyeing process is highly developed, but seems to be due to Imerina influence. The southern tribes do fine figure weaving on the ends of loin cloths, and also employ wide borders of woven beadwork in colors.

Bark cloth.—It is known traditionally on the coast, but is entirely obsolete. Among the east Bara it is still used extensively

but as a result of Tanala influence. The manufacture is like that of area 2.

Hide garments.—Garments of rawhide scraped and pounded soft and dyed black, were worn by the east Bara but are now almost obsolete.

Mats.—They are used primarily as floor covering. The work is rather coarse and there is little decoration except among the Bara, who employ fine woven designs but little color. Sakalava mats are often painted in designs which followed the weaving. The east Bara employ mats of area 1 type for clothing. Food mats are also used. In the north, mats made from narrow woven strips, identical with the Swahili type, are in occasional use. This is said to be due to Commorean influence.

Basketry.—This is well developed and there is a great variety of odd forms intended primarily for decoration. Small baskets are often painted or embroidered. The matting technique is commonly employed, but there is some coiled basketry in the north.

Pottery.—This is well developed in the north, where the old ware was black with fine incised decoration or punctures filled with lime. It becomes poorer as one goes southward and the Vezo, in the extreme south, say it is a recent innovation. In early times they cooked in the *earth oven* as in Polynesia. The Bara make pottery of good grade.

Utensils.—Utensils, other than wooden spoons, are commonly made from gourds. The typical bowl of the area is a gourd cut in two lengthwise. A few wooden bowls are made, but they are important only among the Bara. In the far north, food mats like those of area 1 are employed. Gourds are often etched and the wooden spoons were nearly always carved.

Agriculture.—This was relatively poorly developed. In early times the staple food is said to have been sweet potatoes and is now manioc. Very little rice was grown, and large areas well suited to it had never been brought under cultivation. Millet, maize, and taro were grown but were unimportant. There were no terrace systems, no fertilization, and at least one group had a taboo against irrigation.

Domestic animals.—The old domestic animals were cattle, dogs,

and chickens. Goats seem to have preceded sheep, and the latter have only reached the north within the last two or three generations. Pigs are taboo almost everywhere. Only cattle and chickens are sacrificed.

Cattle.—They are the life of the people. They are kept in fenced pens and in the south the houses of the family are grouped around the pen and open into it. Milk is the principal article of diet and is soured at once by leaving a little of the old sour milk in the milking jug. In the south the ordinary dish is a mixture of curds and fresh milk. Although the natives have enormous herds, the animals are only killed for funerals or sacrifices.

Dogs.—Dogs are highly valued and are used for hunting and herding. There are two varieties, a small jackal-like animal and a large one somewhat like a mastiff. The latter is used for hunting wild pig, and a calf is sometimes given for a good one.

Fishing.—Fishing is important, with hooks, nets, spears, and fish traps. Turtle fishing was a specialized industry and there is said to have been whaling in the south.

Canoes.—Canoes, even when for river use, are provided with the outrigger. Two canoes are lashed side by side for long voyages. The sail is in the form of an inverted triangle, supported by two poles of equal length. In the south a sort of rudder or lashed steering oar was employed. Paddles are long and narrow with a cross grip.

Metal-working.—This is highly developed. Practically all weapons and tools are well made and there is a great deal of inlaying with brass and copper. Ornamental ironwork is lacking, but the Bara do clever casting in brass and even silver, using the lost wax process.

Weapons.—The eyed axe was in universal use and the cleaver type rare or lacking. The main weapon was the spear. In the south the sling was very important. The sword was not used, and the ancient use of shields is doubtful. Well-made clubs of rectangular section seem to have been important in early times. Blowguns with heavy iron-tipped darts were used by the Sakalava for hunting, but were not poisoned. The bow was hardly known, but the Tsimahety, a tribe marginal to the area on the north, used it with poisoned arrows as their principal weapon.

SOCIAL ORGANIZATION

The gens was the basis of organization, but the political groups seem to have been larger and more closely knit than in the other two areas. Kingship seems to have been vested in families rather than gentes, and there were no noble gentes.

Kings.—The king was an absolute monarch and was treated with exaggerated respect. He acted as a supreme court, receiving part of the fines levied, and was paid tribute by his subjects. He was owner of forest and grazing land, which the whole tribe used rent free, but had his own cultivated land and could not sequester that of a commoner. Members of the royal family could take anything belonging to a commoner except cattle or silver. He might act as a war leader. Among the Vezo the royal power was vested in a sword, and the person who succeeded in getting this became king by virtue of it.

There was a *palace group* composed of royal messengers, etc., who were themselves commoners, but these do not seem to have been limited to any gens.

Slaves.—They were numerous, and their status much as in area 2.

Marriage.—It is usually endogamous, although there is no fixed rule. Children of sisters can not marry, or half-brother and sister, but marriage of two brothers or brother's and sister's children is strongly approved. The family is strictly patrilineal, and in marriages across caste lines the child took the father's rank even if the mother was a slave. Formalities of marriage are much the same as in areas 1 and 2. The young people practically always have intercourse before approaching their parents on the subject.

Polygamy.—This is normal and the rights of the various wives are rigidly guarded, the whole being much better organized than in the other areas. The first wife has equal rights with the husband in all property except cattle which he owned before the marriage. Her consent is necessary for all subsequent marriages. Each wife has her house, her land, and her day of the husband's company. Profit from the land goes one-half to her and one-half to the husband. Her share is her absolute property and in divorce she takes it with her.

Polyandry.—This exists only in the case of blood brothers.

Chastity.—Chastity before marriage is unknown. After marriage the wife's unfaithfulness is punished by divorce, while the husband who is guilty has to pay a fine to the wife on whose day the offense occurred. The other wives pay no attention to it.

Divorce.—This is usually by mutual consent, and the property is divided, the wife taking her half of even the cattle. If divorced for some offense, she gets nothing. If she divorces the man for the offenses noted in area 2, she retains full property rights. A divorced woman must have her husband's consent to remarry, and if she wishes to marry a lover on whose account she has been divorced the husband has the right to demand the first children of the new union up to three. These children are adopted and treated as his own.

Property and inheritance.—Cultivated land is held in severalty, but if allowed to lie fallow may be sequestered by the village council and redistributed. It was rarely sold even within the group. In inheritance the property of all sorts is divided equally among the children irrespective of sex or seniority of mother, and the mothers hold and work it as trustees for the children.

RELIGION

Ancestor worship.—Ancestor worship is pre-eminent. Each gens has its hereditary sacrificial priest, who is assisted by the person who will succeed him in office. He performs all but the smallest sacrifices and is a real intermediary between the members of the gens and their ancestors. There are special insignia of office which are inherited. At the death of a priest the office remains vacant for a year, after which the new priest is formally invested.

Andriamananary.—He is the supreme being and is rather clearly personified. He lives above the sky and the ancestors spend most of their time with him and derive their powers from him. He is never prayed to alone. The idea of dualism is present, and the southern tribes pay great respect to and even worship a second spirit whom the Vezo and Mahafaly call

Andriamandresy.—This god lives on or under the earth and

sends storms, sickness, and evil of all sorts. Ghosts who possess living persons are thought in some way to derive their powers from him, although the ideas are very vague in the native mind. Sacrifices are made to him at tamarind trees.

Sacrifices.—They are performed at sacred posts, if to the ancestors.

Vazimba cult.—The Vazimba cult is lacking.

Idols.—Idols, in the strict sense of the term, are lacking, but in the north nearly every group has one or more sacred objects which assume that character.

Dead kings.—They are worshipped by the northern groups, but not in the south.

Sacred places.—Sacred places, especially sacred trees, are fairly numerous, but none of them appear to have priests and the character of the beings worshipped there, aside from Adriamandresy, are vague in the native land. At least one of the Mahafaly gentes has a sacred tree in which the umbilical cords of all its members are placed.

Sacred rivers.—They seem to exist in the northern part of the area, but little information could be obtained.

Ombiasy.—They are extremely important and are always men. They make charms, practise the vintana and sikidy, and there are special ones who know a form of astrology. This last requires many years of study. Some of them claim possession, others keep a powerful charm in their houses from which they derive their powers and for which they demand sacrifices. The line between ombiasy and priest is clearly drawn and if an ombiasy succeeds to the priesthood he must at once abandon his earlier practices or be suspected of sorcery. They seem never to direct sacrifices to the ancestors.

Sorcerers.—They are important but seem to be less feared than in the other two areas. In the south they seem to be confused with grave robbers.

Possession.—This is highly developed and seems to be usually by the souls of dead kings.

Charms.—They are very important and are worn by practically all natives. They cover all phases of activity.

DISPOSAL OF THE DEAD

In the north individual earth burials in secluded cemeteries are the rule. In the south the dead are placed in large blocks of rough stone masonry. Here a husband and wife or parent and child may be buried in the same block, but single burials are the rule. The southern tombs are usually in prominent places. The northern groups took relics of dead chiefs consisting of a part of the frontal bone, a tooth, finger nails, etc., which were kept in tomb houses, taken out, and rewrapped from time to time, etc.

Souls of the dead go to the sky world where they live with Andriamananary. There is no distinction on conduct except that Andriamananary will not allow evil souls to approach him and they are forced to wander on earth. Some groups seem to believe in transformation into animals somewhat as in area 2.

Menhirs are unknown except among the Bara and even here they are only erected by the common gentes, never for royalty.

ART

Carving is highly developed, being used on houses and utensils and on tombs. There is also a love of pure decoration unusual in a primitive people. The walls of houses are often hung with ornamental baskets which served no purpose. Small carvings are exhibited on shelves, etc. The designs used in weaving, matting, and basketry are often very fine. The carving shows a distinctly African quality.

A mass of details have necessarily been omitted in the above summary, but I hope that enough has been given to show that the generally assumed uniformity of Malagasy culture is a myth.

FIELD MUSEUM OF NATURAL HISTORY,
CHICAGO, ILLINOIS

MAYA INSCRIPTIONS VI

THE LUNAR CALENDAR AND ITS RELATION TO MAYA HISTORY

By JOHN E. TEEPLE

RECENT study of Maya inscriptions, particularly those containing dates and moon series attached, has given the writer an historical picture of Central America which may or may not be correct, but is at least suggestive. The territory covered extends from the Peten district on the northeast to Copan on the southeast, to Palenque on the west, and probably to the mountains on the southwest. The records start in the Peten district in the northeast about 8.14.0.0 0 (317 A.D.)¹. They had extended to Copan probably by 9.1.0.0 0 (455 A.D.) and to Palenque by 9.4.0.0 0 (514 A.D.), and during the next hundred years had appeared at most of the intermediate places with which we are familiar.

The picture we get of this region from 9.0.0.0 0 to 9.12.10.0 0 (435 A.D. to 682 A.D.) is that of a considerable number of more or less independent communities united by the use of the same calendar, the same general system of hieroglyphic writing, and similar lunar calendars. Their lunar calendars all agree at any given date, within a day or two, on the age of the moon. They may differ on whether the moon is 19 or 20 days old at a given date, but the agreement is as close as we could expect if the statement of the age of the moon is based on observation and not on a fixed calendar. At least there is no evidence of an uncorrected cumulative error. There is, however, a wide difference in their statements regarding the position of the moon in the lunar year. Whether at a given date the moon is the first or the third or the sixth moon of a lunar half year differs from city to city.

¹ Christian dates throughout this article are given only for ease of comparison and not as statements of fact. I have used the correlation first suggested by Goodman and later revived by Martinez and Thompson, placing 11.16.0.0 0 about November 3, 1539 Julian, not because I feel it is yet proved, but because it is the only one so far suggested which shows fair agreement with the astronomy of the inscriptions, and at the same time has some definite support in the early Spanish period.

Apparently at this stage the Maya were undergoing the effort which almost all people have gone through: they once had a lunar calendar, later discovered a better approximate solar calendar, and were endeavoring by interpolation of whole moon months from time to time to keep the lunar calendar in some sort of relation to the solar calendar. This is a familiar picture in all history. The calendar was in the hands of the priests, and the priest in authority inserted the additional moons at whatever period seemed best to him, or omitted them when he liked. So long as he dealt with the insertion or omission of whole moons, however, the days from new moon would be uniform throughout the territory, and this we find to be the case in the Maya region.

From the earliest contemporary statements of the position of the moon now available, say at 8.16.0.0.0 (356 A.D.) to the latest one 10.2.9.1.9 (878 A.D.), a period of over 500 years, we have over one hundred rather complete dates with moon series attached. Since the age of the moon is so nearly uniform throughout, never varying more than a couple of days from the calculated mean, we may assume that we are dealing with observation data and not with a formal calendar, or if it is a formal calendar it is then so frequently corrected by observations that no cumulative error can be traced. The positions of the moon in the lunar year, however, lacking this uniformity, may be traced as a symptom or trait, and by this symptom we are able to divide the whole 500-600 years of Maya occupancy into three parts, based on the treatment of the lunar year.

Period 1. Independence.—From the beginning to about 9.12.10.0.0 (682 A.D.). A period of non-uniformity when each city was apparently trying to coordinate its lunar calendar to its solar calendar by interpolations in its own way, and this way was different in different cities.

Period 2. Unity.—From 9.12.15.0.0 to about 9.16.5.0.0 (687 A.D. to 756 A.D.), during which the lunar calendar under the leadership possibly of Palenque was standardized into a lunar year of exactly 12 moons, and any attempt to correlate it with the solar year or the Maya year was abandoned. This standardization proceeded rather rapidly from city to city until, by 9.13.0.0.0

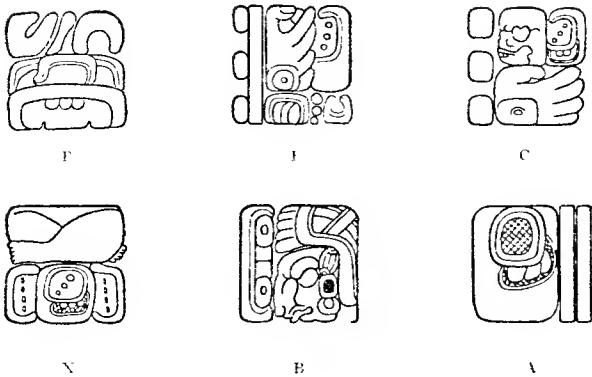


Fig. 1. Piedras Negras stela 1

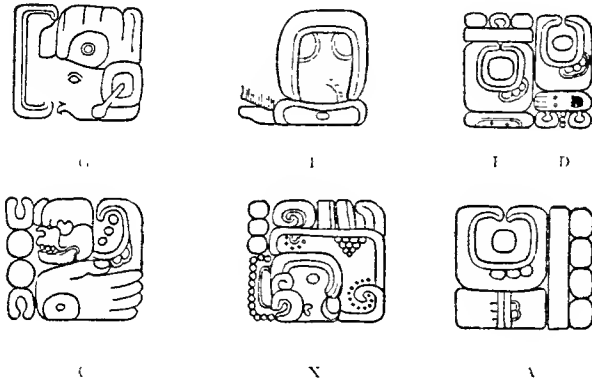


Fig. 2. Piedras Negras stela 3.

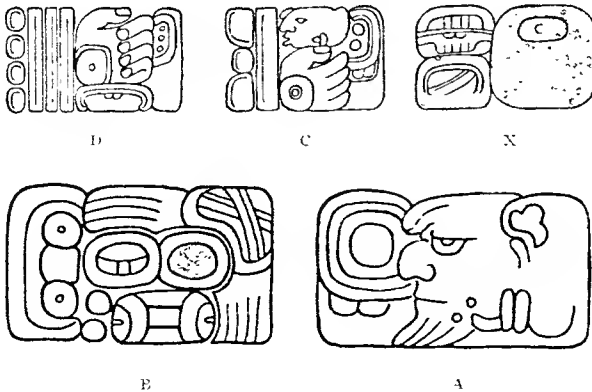


Fig. 3. Naranjo stela 29

(692 A.D.) every city that was erecting monuments had adopted it.

Period 3. Revolt.—From 9.16.5.0.0 to the latest dates (756 A.D. to 878 A.D.). At the beginning of this period Copan abandoned the standard lunar year and adopted instead a lunar year to coincide approximately with the eclipse periods, giving thus an occasional lunar year of only 11 moons, such as we find in the eclipse table of the Dresden Codex. The other cities did not immediately follow this lead (but ultimately it looks as if Naranjo did). Quirigua abandoned the standard method at about the same time but did not follow the Copan method, and thereafter pursued an independent course, finally reverting to the standard method for the moon numbers but disagreeing with everything on the age of the moon. Soon after this the erection of monuments with complete dates seems to have ceased and we cannot follow the question further.

This is a rough outline of the history of one symptom, trait or idea, as I interpret it, but it may be suggestive in showing relationships that will lead to something more important than the mere status of the lunar calendar.

THE STANDARD CALENDAR

During the period of unity the practice in all Maya territory, so far as we know, was so uniform that a description of the different glyphs at that time may be of interest. (See figs. 2, 4, and 6.) (Figures illustrated have been taken from Dr. Morley's drawings in the Holmes Anniversary volume.)

Glyphs G and F.—I have nothing of interest to add to what has already been so clearly stated by Dr. Morley. Glyph G seems to refer to the sun, and glyph F is always associated with the moon series or a lunar computation. Beyond this I do not know their meaning.

Glyphs E and D.—Glyph E is used when the age of the moon is 20 days or over, the coefficient of E being added to 20 to determine the number of days from new moon. Glyph D is not counted unless it has a coefficient. If it has a coefficient then glyph E never has one. The coefficient of glyph D represents the number of days from new moon when the days are less than 20.

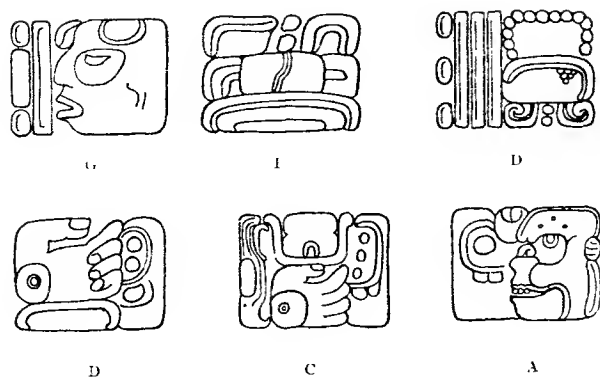


Fig. 4. Naranjo, stela 24

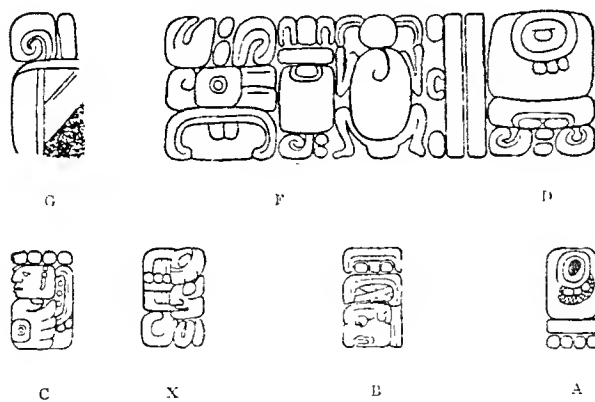


Fig. 5. Yaxchilan, stela 11 (front).

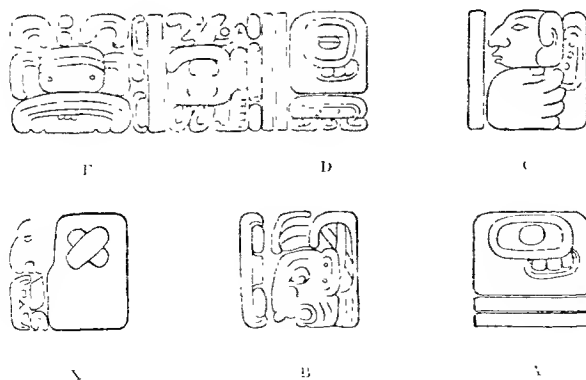


Fig. 6. Yaxchilan stela 11 (side).

There are three possible positions from which new moon might be counted. First, from the disappearance of the old moon; second, from the actual conjunction; or third, from the first appearance of new moon. During the period of the standard calendar I am inclined to think the count was from the first appearance of new moon, or possibly from conjunction, while during the period of independence the count began earlier, probably from the disappearance of the old moon. There was apparently a one-day change at the time of the introduction of the standard calendar, and this would be just about the amount necessary to change from the disappearance of the old moon to the first appearance of the new moon. In Spanish times Bishop Landa states that "the count of the moon was from the time when it rises new," and this probably means from the appearance of new moon rather than from the conjunction some hours earlier.

It should be mentioned again that the count of D and E was essentially uniform and in relation to observation no matter whether we are in the period of independence, of unity, or of revolt.²

Glyph C.—The coefficient of glyph C probably indicates the number of completed moons since the end of the last lunar half year, but we cannot overlook the possibility that it might indicate the number of the current moon. A series of faces either indicating numbers or gods form a part of glyph C, but I do not understand their significance. They may place the month in the lunar year since the numbers from 1 to 6 only place it in the lunar half year, but it seems to me more probable that they represent divinities to whom the particular moon was consecrated.

Glyph X.—This glyph is the most variable of any in the series, and inspection shows that its variation is associated with the number of the moon in the moon half year, i.e., with the coefficient of glyph C, regardless of the position of the date in relation to the tun, the Maya year, or the tropical year. If the coefficient of C is changed for any given date, then X changes accordingly

² The first record is 8.16 0.0.0 at Uaxactun recorded 5 E. The last entirely trustworthy one is 9 18 10 0.9 at Naranjo recorded 1 E. From these we deduce 162,004 days for 5486 moons, which checks absolutely with 162,004 or 162,005 days formed from modern moon tables.

although the Maya day, month, and long count remain unchanged (see figs. 1-6).

Any given glyph for X seems to be associated with two adjacent moon numbers, as though X might give a name or a description to thirds of the lunar half year, that is, to 2 consecutive moons. For example, the glyph for God C (see glyph X in fig. 2) never occurs unless the glyph C coefficient is either 1 or 2. This form of X is present in nearly every case where the coefficient of C is 1, and in not quite half the cases where C is 2. One other form of X is found three or four times (see fig. 7), and this form only occurs when C is 2.

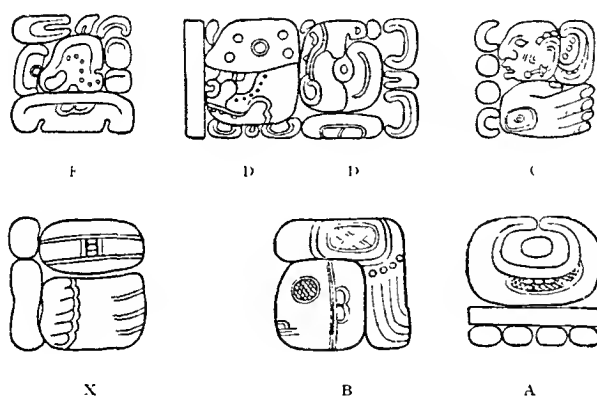


Fig. 7. Palenque, Temple of The Cross.

In figure 1 the glyph for X shows prominently a pair of crossed legs. This is a very common form of the X glyph but is never used unless the C coefficient is either 3 or 4. The only exception to this so far as I have found, is in lintel 29 at Yaxchilan where X is represented by crossed legs and C is apparently 5. A face with the tun sign, a 10 tun sign, or the Zero sign before it (see glyph X in fig. 5) is found when the C coefficient is either 4 or 5. The one exception to this is on stela 14 at Piedras Negras, where this combination occurs with 3C instead of 4 or 5C, but in this particular case the date given is only 3 or 4 days before 4C. In the form of glyph X shown in figure 3 the upper left-hand part of the glyph appears only in connection with 6C. This same symbol

occurs on the usual face numeral for 12 and is fairly common in the inscriptions. I think it is likely the sign for the 12 moon lunar year. It is a very old glyph, as old as the Leyden plate, whose date shows the end of a moon and probably a lunar year.

A few other glyphs are repeated once or twice, but the above sufficiently indicates that glyph X refers to certain divisions of the lunar half year, associated with the number of the moon in that period. We probably, however, have insufficient data to recover these divisions and reconstitute the year exactly.

Glyph B.—Glyph B is very uniform in all inscriptions. It contains an ending sign prefix, an elbow with crossed bands, and within the elbow either 2 circles and an oval (fig. 3) or an animal head, possibly a jaguar (figs. 1, 5, 6). I take glyph B to signify that the end of a moon will be a 29 or a 30 day moon as shown in glyph A immediately following it, but whether the reference is to the current moon or to the recently completed one is uncertain.

Glyph A.—Glyph A with coefficient 9 indicates a 29 day moon, and with coefficient 10 indicates a 30 day moon. This has been known for a long time. This is one place where we get some indication that the lunar calendar might have been a formal one. If we examine the occurrence of 29 and 30 day moons we find more regularity than the laws of chance would lead us to expect. When glyph C is 1, 3, or 5, the number of 30 day moons is nearly 3 times the number of 29 day moons, and when glyph C is 2, 4, or 6, the number of 29 day moons is nearly 3 times the number of 30 day moons. This indicates a certain formalizing of the calendar with alternating 29 and 30 day moons, but there are a good many exceptions, more than would be necessary simply to keep a formal calendar in adjustment.

Also we find that when at Piedras Negras a date was changed from 3C to 2C (figs. 1, 2) glyph A was changed from 30 to 29. At Naranjo a change of C from 6 to 1 was accompanied by a change in A from 29 to 30 (figs. 3, 4), and at Yaxchilan a change of C from 4 to 5 meant a change of A from 29 to 30 (figs. 5, 6). The general tendency was evidently for an odd C to be associated with 30 days in A, and an even C with 29 days, and this indicates

the possibility of a formal lunar calendar, which however must have been corrected at very frequent intervals so that it was never more than 1 or 2 days out of adjustment with observation.

Other Glyphs.—Between glyph F and glyph E there sometimes occurs a small kin sign with arms and legs. This is in most of the inscriptions at Yaxchilan (see figs 5, 6), in the two that are known from Ixkun, in the one from Holactun, and in one from Copan. I have no idea what it means nor how to use the numerical coefficient often associated with it, nor do I understand the coefficients 5, 7, or 9 often attached to glyph G.

The above gives a summary of the standardized moon series so far as we can explain it. This form was used universally in the Maya area from 9.12.15.0.0 to 9.16.5.0.0, and in some places later. It is a uniform lunar half year of six moons with no moon interpolations and no attempt to reconcile it with the solar year, the Maya year, or the tun. It was, however, in close agreement with actual moon movements. The count of the moon age was probably from the actual appearance of new moon. The calendar was likely formal in its arrangement of 29 and 30 day moons, but if so it was corrected by the addition of a day often enough to keep it in correspondence with the actual new moon.

EVIDENCE FOR STANDARDIZATION

Our thesis is that a period of independence in numbering the moons of the lunar calendar was followed by a period of uniformity. The uniform calendar may be defined with sufficient precision as one which would write 9.16.0 0.0 as about 5C 5D, i.e., 5 days and 5 moons after the beginning of a lunar half year, all lunar half years being exactly six moons. The evidence will be of two kinds; first, a series of double dates like the three pairs, illustrated in figures 1-6, and second a list of dates from each city showing agreement after adoption of the standard, and lack of agreement before. It will be simpler to consider the cities separately. While the movement probably began at Palenque, the spread to other cities will be given first.

1. *Piedras Negras.*—Standard lunar calendar adopted between 9.12.10.0.0 (682 A.D.) and 9.12.15.0.0 (687 A.D.) and used until

9.18.0.0.0 (790 A.D.). For a point of departure the date 9.12.2.0.16 (674 A.D.) was selected and its date stated in terms of the old calendar (fig. 1) as 3C 8E and of the standard calendar (fig. 2) as 2C 7E. These statements were made about 20 years after the adoption of the calendar.

DATES IN STANDARD LUNAR CALENDAR

			<i>Glyph C given</i>	<i>Glyph C expected</i>
Stela 6	9.12.15.0.0		4	4
" 2	9.13.5.0.0		6	6
" 4	9.13.10.0.0		-	1
" 1	9.13.15.0.0		2	2
" 3	9.14.0.0.0		3	3
" 5	9.14.5.0.0		4	4
" 7	9.14.10.0.0		5	5
" 11	9.15.0.0.0		-	1
" 9	9.15.5.0.0		2	2
" 10	9.15.10.0.0		3	3
" 40	9.15.14.9.13		4	4
Altar 2'	9.16.0.0.0		-	5
Stela 16	9.16.15.0.0		2	2
" 13	9.17.0.0.0		-	3
" 3	9.12.2.0.16		2	2
" 8	9.11.12.7.2		5	5

The last two dates of course are on monuments erected after 9.12.10.0.0

DATES DURING PERIOD OF INDEPENDENCE

		<i>Glyph C given</i>	<i>Glyph C expected</i>
Stela 38	9.12.10.0.0	2	3
" 39	9.12.5.0.0	-	2
" 37	9.12.0.0.0	5	1
" 35	9.11.9.8.6	-	5
Lintel 2	9.11.6.2.1	5	6
Stela 1	9.12.2.0.16	3	2
" 36	9.10.6.5.9	4	5
" 31	9.10.5.0.0	3	1
" 26	9.9.15.0.0	5	5
" 25	9.8.10.6.16	3	5
" 30	9.5.0.0.0	5	5

These two lists are rather striking. There are enough dates at Piedras Negras to give a clear picture, and thanks to the courtesy of Dr. Morley I have been able to study photostats of all his

drawings. During one hundred years after the adoption of the uniform calendar we have sixteen dates, and glyph C can be read in twelve of them. Without exception they are given as we should expect. During the preceding one hundred and fifty years we have eleven dates, and glyph C can be read in nine of them. Only two of the nine have the coefficient that we would compute and this is about the proportion we should expect from chance alone. This covers all Piedras Negras dates except two late ones after 9.18.0.0.0. Hence we conclude definitely that at 9.12.10.0.0 (682 A.D.) Piedras Negras was still using her old lunar calendar and at 9.12.15.0.0 (687 A.D.) she had adopted the new one.

2. *Copan*.—Standard lunar calendar adopted by 9.13.0.0.0 (692 A.D.), the computations being made on altars H' and I' and point of departure being date 9.12.8.3.9. There are 15 dates on monuments pretty surely constructed before 9.13.0.0.0 (692 A.D.) where C can be read. Only one has the C coefficient we should expect from the uniform calendar. This is 9.10.19.13.0 on stela 10, and even it may be of later construction. Then comes the date 9.13.3.7.8 on the hieroglyphic stairway, date of writing not known and reading not sure, then uniformity, as follows:

		<i>Glyph C given</i>	<i>Glyph C expected</i>
Altar H'	9.12.8.3.9	5	5
Stela J	9.13.10.0.0	1	1
" 5	9.13.15.1.0	3	3
" A	9.14.19.8.0	6	6
" D	9.15.5.0.0	2	2

Entire agreement, and no more dates given until 9.16.5.0.0 when something entirely new starts at Copan.

3. *Naranjo*.—Uniform lunar calendar adopted at least as early as 9.13.10.0.0 (702 A.D.) when stela 24 was erected, and probably earlier. Point of departure used 9.12.10.5.12, which is given on stela 29 (fig. 3) by their old calendar as 6C 19D, and on stela 24 (fig. 4) by the uniform calendar as 1C 18D. There are no earlier dates with moon series. Then comes stela 22, 9.12.15.13.7; if the coefficient of C here is 1 it agrees with the uniform system. Stela 23 the date is doubtful.

		<i>Glyph C given</i>	<i>Glyph C expected</i>
Stela 30	9.14.3.0.0	4	4
" 13	9.17.10.0.0	4	4
" 14	9.17.13.4.3	3	2
" 8	9.18.10.0.0	2	2

One disagreement, probably showing revolt.

4. *Yaxchilan*—Date of adoption doubtful due to absence of contemporary dated monuments. It may have been as early as 9.12.15.0.0, the same as Piedras Negras. Double dates are given on stela 11 showing 9.16.1.0.0 as 4C 12D by the old system (fig. 5) and 5C 12D by the uniform calendar (fig. 6). Also date 9.0.19.2.4 is given correctly on a late monument as 3C. During the period of independence we have only two dates, on stela 6 and altar 44, neither in agreement with the uniform calendar. After 9.12.10.0.0 we have all in agreement. I have omitted only the date on lintel 26 which is a doubtful reading.

		<i>Glyph C given</i>	<i>Glyph C expected</i>
Lintel 21	9.0.19.2.4	3	3
" 29	9.13.17.12.10	5	5
" 98	9.15.6.13.1	5	5
" 46	9.15.14.8.14	3	3
Stela 11	9.16.1.0.0	5	5
" 1	9.16.10.0.0	1	1

5. *Quirigua*.—This place was probably not founded until after the uniform calendar was in general use, so it started right, using as point of departure the date 9.14.13.4.17. Soon after 9.16.5.0.0 however, when Copan abandoned the uniform system, Quirigua abandoned it also, but not to follow the lead of Copan.

PERIOD OF UNITY

		<i>Glyph C given</i>	<i>Glyph C expected</i>
Altar S	9.15.15.0.0	4	4
Stela H	9.16.0.0.0	5	5
" J	9.16.5.0.0	6	6
" E	9.14.13.4.17	3	3
" D	9.16.13.4.17	4	4

The last two dates are on later monuments erected after the standard system had been abandoned and purposely dated back according to the abandoned system, although the main dates on the same monuments are not.

PERIOD OF REVOLT

		<i>Glyph C given</i>	<i>Glyph C expected</i>
Stela F	9.16.10.0.0	6	1
" D	9.16.15.0.0	1	2
" E	9.17.0.0.0	2	3
" A	9.17.5.0.0	2	3
" B	9.17.10.0.0	—	4
" G	9.17.15.0.0	5	5
" O	9.18.0.0.0	—	6
" P	9.18.5.0.0	4	1
" I	9.18.10.0.0	2	2
" K	9.18.15.0.0	3	3
Struct. 1	9.19.0.0.0	4	4

The last three dates for some reason return to the expected C glyphs, but they differ entirely from all other Maya inscriptions in the statement of glyphs D and E, the moon age count.

6. *Other cities*.—El Cayo was using the uniform system when the lintel having date 9.16.0.2.16 was placed. La Honradez in 9.17.0.0.0. Ixkun had probably revolted from it by 9.17.9.0.13. Tila had not begun its use in 9.12.13.0.0. Nor Tikal in 9.4.0.0.0. Chichen Itza was not using it in 10.2.9.1.9, nor Uaxactun in 10.0.0.0.0.

7. *Palenque*.—The situation at Palenque is confused owing to the absence of contemporary dates with moon series. We actually have only one, 9.12.6.5.8, 5C 19D. If this reading is correct it does not agree with the uniform calendar, which calls for 6C at that date. On the other hand, the tablets at Palenque deal with long computations on the lunar year, extending thousands of years into the past, but do they favor or oppose the uniform system? In the distant past they were sure that 4 Ahau 8 Cumhu was 6C 4E, but their ideas about their present are not explicitly given in shape for us to read. If in the long computations at Palenque they used the factor $11.0.0.0 = 2682$ moons or $223\frac{1}{2}$ lunar

years, as seems probable and as was apparently done at Copan, then computing from the ancient dates we find their contemporary dates agreed with the uniform calendar. If they used the factor 1.13.4.0 of the Dresden Codex then they were in error 1 moon. I think they used the 11.0 0.0 factor, and so were in agreement when the tablets were written in 9.13.0.0.0 or earlier.

Three indications make me think that Palenque probably originated the idea.

First, the tablet in the Temple of Inscriptions seems to indicate that 9.12.0.0.0 was 2C, which would agree with the new calendar, but the statement is vague and inconclusive.

Second, when the other cities adopted the new system they often seemed to take dates that were important at Palenque for their point of departure. Yaxchilan selected 9.0.19.2.4, 3C 7D, which is just 243 lunar years (3 to the 5th power if that means anything) from the Palenque 3 Caban 15 Mol. Quirigua selected 9.14.13.4.17, 3C 7D, just 1 moon period of 1.14.17.0 or $35\frac{1}{2}$ lunar years from the same date. The first contemporary date given correctly at Copan in the uniform system 9.13.10.0.0 is just 20 lunar years from the double date used at Naranjo, 9.12.10.5.12, and the latter in turn seems to be based on the one stela cited above from Palenque.

Third, in each case of double date, besides altering the moon number to agree with the uniform calendar, the cities have also decreased the moon age by 1 day (I am not sure whether this was done in the double date at Yaxchilan). This means to me that the uniform calendar began the month with first appearance of new moon, while the older custom had been in most cases to begin the month about a day earlier after the disappearance of the old moon. At Palenque the same thing is probably expressed by changing from 2 Cib 14 Mol to 3 Caban 15 Mol, leaving the moon age unchanged.

These three things indicate that Palenque was an early and important part of the movement, possibly as originator, possibly as one of the earliest converts, possibly as an opponent. Her history ceased so soon after 9.13.0.0.0 that she may have been a conqueror moving into new territory and leaving the old

site, or she may have been an opponent vanquished or driven away.

PERIOD OF REVOLT

We have seen evidence of independence in Period 1 (up to 9.12.15.0.0), evidence of unity in Period 2 (during the next 70 to 120 years), and we now come to Period 3, the revolt. The first evidence is from Copan in the extreme southeastern corner of the territory. In 9.16.5.0.0 when all was harmony she erected stela M. Its lunar date at that time would have been written in any city in the Maya territory as 6C 4 or 5D. Copan deliberately dated it 5C 5D. Stela N in 9.16.10.0.0 by her new system was dated 1C 1D, but accidentally the standard system would have agreed on 1C also. Her third date, 9.16.12.5.17, 6 Caban 10 Mol, by the standard calendar would have been 5C and about 12D, but Copan dated it 6C and probably 12D. The altar which commemorates this event shows the famous astronomical congress in session. It was a very important occasion. In fact I consider it very probable that in these three monuments we have the origin of the method of making lunar years accord with eclipse syzygies as shown in the Dresden Codex table, but that does not concern us now.

Copan broke away from the uniform system, and five years later Quirigua on stela F (9.16.10.0.0) wrote 6C when every other city was writing 1C. Quirigua was never afterward in complete agreement with the standard calendar, except once in 9.17.15.0.0 and this was probably accidental. Indeed, in stela C she broke away entirely from the Palenque computation that 4 Ahau 8 Cumhu was 6C 4E and wrote it 3C 6E. The extreme southeast was gone. In 9.17.9.0.13 Ixkun disagrees, in 9.17.13.4.13 Naranjo does, and after 9.18.0.0.0 Piedras Negras disagrees for the first time in over one hundred years. The dates are becoming very scarce and we cannot follow them much further. After 9.18.0.0.0 I find only one single date in agreement with the standard calendar (9.18.10.0.0 at Naranjo), and this may be an accidental one. Soon afterward historical monuments here all cease. Unfortunately up to the present there is nothing available to enable us to bring Yucatan into the picture.

SUMMARY

We have indicated fairly clearly the nature of the lunar calendar and the use of most of the glyphs in the moon series, at least during the period of uniformity. We have been able by this trait to trace the Maya cities through two or three hundred years of independence, followed by less than one hundred years of complete unity, magnificence, and artistic effort, and this in turn ended by revolt or progress, and later speedy decline or abandonment.

We have determined fairly well when this movement affected each city and for how long. At Piedras Negras it began after 9.12.10.0.0 and before 9.12.15.0.0, and was ended at least by 9.18.0.0.0. At Copan it began after altar K, 9.12.16.7.8 and before 9.13.0.0.0, and ended by 9.16.5.0.0, being then succeeded by a new movement either of revolt or progress. At Quirigua it began with the city and ended by 9.16.10.0.0, being succeeded by a movement which lasted until 9.18.0.0.0, when it in turn was succeeded by something else. At Naranjo it began surely by 9.13.10.0.0 and probably somewhat earlier, and was apparently ended by 9.17.15.0.0. At Yaxchilan it probably began as at Piedras Negras by 9.12.15.0.0, but we have no proof before 9.13.17.12.10, nor have we any evidence when it ceased, lacking legible inscriptions after 9.16.10.0.0. At Palenque it apparently began after 9.12.6.5.8 and before 9.13.0.0.0, but we know nothing of its future history there.

We do not know the nature of the unifying influence. Was it intellectual, led by astronomers, or religious under the prestige of a Pope Gregory, or political by force of arms? Only political power and possibly conquest would seem adequate to effect such complete unification in less than ten years, as well as to account for the subsequent revolt beginning at the most remote points. Up to 9.12.10.0.0 no city was using the standard lunar calendar so far as we know; by 9.13.0.0.0, less than ten years later, we can find no city that was not using it. Did the movement originate in Palenque, or were Palenque and Piedras Negras simply the first cities in the path of an impulse coming from the northwest?

What other traits can be traced in company with the calendar? What of new appears at Piedras Negras in 9.12.15.0.0 that was

never there before? What new impulse do we find reaching Copan by 9.13.0.0.0, and is it followed by another impulse of different nature in 9.16.5.0.0, or do we see only progress with no real break? The changes of lunar calendar shown above may furnish us a structural framework into which other variations may be fitted until the history of the people finally appears, but for the moment the chief result is to suggest a lot of questions and lines of investigation.

50 EAST 41st STREET,
NEW YORK CITY

MENTAWEI SOCIAL ORGANIZATION

By EDWIN M. LOEB

THE Mentawai islands lie 100 degrees east of Greenwich, and extend from the equator 5 degrees south. They belong to a general group of islands lying west of Sumatra, of which Nias is the more important to the north, Engano to the south. The Mentawai islands are at present under the Dutch government. At the time I visited Mentawai, the spring of 1926, the permanent residence of the Dutch lieutenant in charge was in the large northern island, Siberut. A detachment of native soldiers was stationed in the intermediary island, Si Pora, and another detachment at North Pageh, the northernmost of the two Pageh islands. I did all of my work on North Pageh, spending five months. The resident German missionary aided me in learning the native language, in obtaining information from the natives, and in lending me the aid of his Christian Batak teachers, who wrote down texts from the verbal information given by the indigenes.

The natives of the Mentawai islands belong to the Malayan race, with but a trace of Veddoïd influence. The latter gives rise to occasional wavy hair types. Culturally, compared to other Malayan peoples, the Mentawai islanders belong at the bottom of the ladder. Due to their isolation, the waves of early Hindu and later Mohammedan influence left them untouched. For this reason Hindu traits, which were introduced elsewhere into the Malay archipelago and the Philippines, are absent in Mentawai. The more important of these traits are: rice culture, the smelting of iron, pottery, cotton and cotton weaving, work in stone structures, betel-chewing, and the development of chieftaincy. In the religion of the Mentawai islanders some trace of Hindu influence can be seen in the customs of chicken and pig sacrifice, the communal meal, and the arts of divination, especially that of hepatoscopy. On the other hand, the mythology of Mentawai has remained untouched by Hindu influence.

Concerning the original home of the Mentawai people little is

known. Dr. Karny has surmised¹ that the Mentaweians emigrated from Sumatra to Nias, and thence to Siberut. From an account of the year 1621, Karny ascertained the fact that only Siberut was at the time inhabited. The Pageh islanders have retained traditions of migrations to the southern islands, and the founding of the first village in North Pageh, Taikako. At the present day there are certain linguistic and cultural differences between the three groups of the Mentawei islands; Siberut, Si Pora, and the Pagehs. These differences become accentuated in North Siberut, due probably to Nias influence. It is only in the latter region that head-hunting and the use of the shield are to be found. Little is known, however, of the Mentawei islands with the exception of the Pagehs.²

A very brief summary of the material culture and the religion of Pageh is essential to the understanding of the social organization. I shall make use of the word "Mentawei" rather than "Pageh" in this article, with the understanding that data mentioned were collected in the Pagehs, rather than throughout the islands as a whole.

The Mentawei islanders live in pile houses. These may be classified as follows: the *uma*, the *lalep*, and the *rusuk*. The *uma* is the communal house. It is utilized as council house, trophy house (for skulls collected in the hunt), reception house for visitors, dancing-floor, and sleeping-place for the men during *punen*, or religious celebrations. During these periods the men have to keep apart from women. The communal house is not forbidden to women, although it belongs more especially to the men. The building of this house entails a long period of *punen* (religious festival) and, in former days, a human sacrifice under the center pole. The *uma* and the surrounding family houses (*lalep*) compose the Mentawei social, political, and religious unit. Like the Bontok Igorot, the Mentawei village does not act as a unit. Each portion of the village has its own *uma*, and each portion is spoken of as an *uma*. While each *uma* has its own

¹ Dr. Heinrich H. Karny, *Auf den Glückinseln*. Natur, 1925.

² A not over reliable book was written on Si Pora, viz., Alfred Maass's *Bei lebenswürdigen Wilden*, Berlin, 1902.

rimata, or sacrificing priest, the government of the *uma* is in the hands of all its adult men. The priest has no jurisdiction other than religious, and that only during *punen* ceremonies.

Both the communal house (*uma*) and the family house (*lalep*) contain altars at which the livers of chickens and pigs are given in sacrifice to the spirits. While it is the *rimata* or priest who sacrifices for the souls of all the members of the community (the *uma*), it is the house father (*ukui*) who afterwards sacrifices for the members of his household. Therefore, while the priest is surrounded by an elaborate network of taboos, the house father also is under many restrictions. The result of this circumstance is the seeking out of the position of *rimata* by men of lazy temperament, and the avoidance of marriage until late age by all men. A man cannot afford to be a house father (*ukui*) until he has children to help him in his labor. Both the priest (*rimata*) and the shaman (*sikerei*) are required by native custom to be married men. If they were single they might break some of the taboos of office.

The *rusuk* is any house which does not contain an altar. These houses may be situated in the banana fields of the men, or in the village itself. When they are situated in the fields they are usually spoken of as *sapou*, or field huts. Young men, young women, and widows or widowers commonly live in *rusuk*. The *rusuk* is free from taboos, and youths can eat what they wish there, or do otherwise as they will. The young people hold their love affairs in the *rusuk*. This matter will be referred to again when speaking of marriage. Finally, a man or woman who has been put out of the community (*uma*) lives in a *rusuk*. He then can take no part in the communal life and festivals of his associates. He is called a *si-pu-rusuk*. The individual is only put out of the community for serious cause, such as witchcraft. The individual must, before leaving the *uma*, summon his soul from the roll of the inmates of the *uma*. While he is living in *rusuk* he is not allowed to partake of sacred, or sacrificial, food. All deer and sea-turtle which he catches must be given to the members of the *uma*.

The clothing worn by the Mentawai islanders is very scanty, and of a primitive nature. The men wear a loin cloth made from tapa from the breadfruit tree (*ariocarpus incisa*). The remainder

of their apparel is in the nature of decoration rather than clothing. Strings of red-colored rattan are worn, as well as imported glass beads and brass arm rings. The hair hangs over the left ear, and is tied to a knot at the shoulder. The clothing of the women is also very simple. When they are at home in the village they merely wear a strip of imported cloth around the lower portion of the body. This was formerly made of tapa. When the women go out they wear an upper dress, skirts and hat made from banana leaves.

The main weapon of the Mentawai islanders is the bow and arrow. For the purpose of shooting monkeys, and in war, the arrows are poisoned with *antiaris toxicaria*. For birds, blunted arrows are used. Spears were also formerly used in war, the iron heads being imported.

The most important decorations of the Mentawai islanders are their filed teeth and tattooing (*titi*). The latter is done by the aid of two little sticks. On one of the sticks is a vertical needle. This stick is tapped by the other stick. Small pricks are made in the skin in this manner, and the coloring matter, the darkened sap of the sugar cane, is inserted. A convex bow is started on the chin and comes down to the shoulders. Lines are also made over the breast to the pit of the stomach. The hips, arms, legs, and fingers are also tattooed. The tattooing on the women resembles that on the men, but is simpler in form. According to the belief held by Herr Börger, all tattooing was formerly connected with the religious festival (*punen*) system of the Mentawai islanders.³

The Mentawai islanders have two forms of boats. The first is a simple dugout canoe, without outriggers. The second is the large war boat (*kalaba*). The second boat can hold as many as

³ According to information which I received while investigating the Mentawai *punen* system, the tattooing on the calf of the leg, the back of the hands, and the sides of the body, was the final form of decoration, and formerly was always done at the time of a special *punen*, *punen lepa*. This *punen* was held to wipe out the evil influence of blood spilled in the village. A special porch was constructed in front of the *uma* for the purpose of the tattooing, so that the blood would not fall on the ground. In the words of the informant, "The blood that flowed from the tattooing was for the purpose of covering the blood of the dead man." The tattooing on the upper leg of the men was always done just before marriage.

thirty men, is rowed, not paddled, and is fitted with sails. It is furnished with a roof and outriggers. The war boat was formerly used in the expeditions between islands, when feuds were to be settled, or a human sacrifice obtained. It is now still used for the purpose of going to the small uninhabited islands at the period gathered. The dugout canoe (*abak*) is used as a means of communication between villages, for fishing, and by the women in going to their submerged taro fields. The villages are all laid out in the interior of the islands, on the sides of the rivers. Formerly paths were scarce, and the boats served as the chief means of communication.

The food of the Mentawai islanders is chiefly fish (*iba*). Meat is also called *iba*. The pig, chicken, and dog (which is not eaten) are kept as domestic animals. Deer and monkeys are hunted with the aid of dogs. In Siberut the wild boar occurs, and is also hunted. The men cultivate fields of banana trees and sugar-cane. The women grow taro in fields which are inundated. Sago is prepared as chicken food, but is not eaten by the people. In Siberut sago and not taro is the main article of diet of the people. Rice is grown nowhere except in the two Christian villages of Pageh. The system of religious festivals with their attendant idleness prevents the cultivation of this cereal. The villages that have turned Christian are said to have done so for the purpose of being able to cultivate rice.

The Mentawai people believe in nature spirits, souls, and ghosts. The chief nature spirits are those in the sky (*tai-ka-manua*), those in the sea (*tai-ka-baga-koat*), those in the jungle (*tai-ka-lelu*), and those in the earth (*tai-ka-baga-polak*). The translations are literal. The spirits are not given individual names, nor are there higher gods, as elsewhere in Indonesia. There is however a special earthquake god called *Teteu*, or grandfather. It is because of this god that the human sacrifice was formerly made at the time of building an *uma*. It is also because of this god that there is in Mentawai a taboo (*takeikei*) against the spilling of blood within the village.⁴

⁴ One exception to this rule is made. At the time of building an *uma*, blood is spilled on the ground to summon *Teteu* up to witness the dancing.

Besides these spirits, the Mentawai people believe in two river spirits, *Ina Oinan* (mother of rivers, or water) and *Kameinan*, or, in translation, father's sister. The first of these spirits is propitious towards the people, if properly sacrificed to, and providing the people have committed no ritual sin. It is probably due to this spirit that the people have the custom of bathing their children all day in the water of the rivers while the children are young. The custom is said to be due to the need of acquainting the young with the water spirits, so that they will not stumble in the rivers. The second spirit, *Kameinan*, is always spoken of as being evil.

The Mentawai religion, in common with other Indonesian religions, hinges on the soul concept. The main purpose of the cult in Mentawai is to obtain health and long life. Disease is thought to be due to the temporary absence of the soul, death to the permanent soul-loss. The soul that leaves the body in dreams and sickness is called the *si-magere*. The soul that leaves at death is called the *ketsat*. It is this latter soul which turns into the ghost, *sanitu*. Ghosts are always the bringers of disease, and are invariably malevolent. Ghosts are never prayed to, except for the purpose of witchcraft, nor do they receive sacrifices except for the aforesaid reason. Avoidance is practised towards the ghosts, for they alone are primarily responsible for the luring away of people's souls. In order to prevent this, *kera* or fetish sticks are erected at all of the possible entrances to the village. These sticks prevent the approach of the ghosts, as long as the people have committed no ritual sin, have broken no taboo.

This leads to the necessity of another explanation. Not only have all people souls, but all animals and plants also have souls. Thus, when a pig is sacrificed, the liver is placed on the altar for the protecting spirits of the *uma*. But it is not the liver itself that the spirits are supposed to eat, but rather the soul (*ketsat*) of the pig, and this *ketsat* resides in the liver. In one account of a pig sacrifice it is recorded that "the *ketsat* of the pig went squealing up to the skies" as a sacrifice to the heaven spirits. There is still another animating factor in back of all things, both of the animate, and of those, which to us, are inanimate. These are the spirits

(*kina*). All objects have *kina*. Therefore it is not the fetish sticks (*keru*) themselves which keep the ghosts from the village, but it is the spirits (*kina*) of the sticks which perform the office. For this purpose the people give the fetish sticks thorns, spears, and daggers. The people also must sacrifice to the fetish sticks, or rather to the *kina* of the sticks. Since everything in existence has *kina*, everything is considered anthropomorphic. Thus the *uma*, the houses, boats, bamboos, etc., speak, are spoken to, and act as human beings. One of the most important taboos in Mentawai is directed against the cutting of boats and work tools. The *kina* of these articles would object. Finally it may be suggested that the *kina*, or spirits, are more fundamental than the souls of living beings. For while souls are found only in living beings, spirits (*kina*) are found in all objects. Even souls, *si-magere*, must have spirits, *kina*, to animate them! Thus the first line of an invocation made by the priest (*rimata*) at the founding of a new *uma* reads, "Konan kina-si-magere-mai tatoga-ku." "Come, spirits of the souls of our children."

Necessarily the shaman (*sikerei*) is the most important man of the community. For since the object of Mentawai religion is the avoidance of sickness, the major portion of the cult falls into the hands of the shaman. Moreover, it is the shaman alone who has "seeing eyes and hearing ears," that is, it is he (or she) who can see and hold conversation with the spirits of the altar, and thus diagnose disease. Moreover, the ghosts are visible to his eyes alone, when they enter the village, bringing death and disease. Finally, it is the shaman who accuses people of witchcraft. This gives him the power of removing persons obnoxious to him.

The shaman of Mentawai is not of the "inspired" type, as among the Batak. That is to say, neither spirits nor ghosts enter his body or speak through his lips. While he holds conversation with, and is in special rapport with, the invisible and spirit world, still this world remains outside of his own person. If, then, the word "shaman" be used in its Siberian connotation, it would be better to label the Mentawai *sikerei* as a "seer." Culturally the seer type of medicine-man is older than the true shaman or inspired type, for it is the seer that is to be found among the more

primitive, or more isolated peoples, such as the Australians, the Andaman islanders, and most, if not all, of the American Indians. The seer usually obtains his position and power through acquiring a vision, and the Mentawai *sikerei* must obtain a vision in order to have his "seeing eyes and hearing ears." This vision is sought for after the youth is warned by sickness. If the youth disobeyed the warning he would die.⁵

The religious festival of the Mentawai people is called *lia* or *punen*. The *lia* is a family festival, is of shorter duration, and is attended by the sacrifice of chickens. The *punen* is the celebration attended by all of the members of the *uma*, men, women, and children. It is of longer duration, lasting sometimes for years, and both pigs and chickens are sacrificed. The house father (*ukui*) conducts the *lia*, the priest (*rimala*) conducts the *punen*, aided by one or more seers. According to Hansen, the Mentawai islanders are in a state of *punen*, with its attendant taboos (*takeikei*), for about ten months in the year.⁶ The Mentawai

⁵ Among the Plains Indians every man is supposed to obtain a vision, and hence all would, according to my definition, be seers. This of course is not true. The probabilities are that this aspect of Plains culture arose from the vision quest of seers proper. Among other Indians, as the California Pomo, certain medicine-men are not seers, but practise by virtue of inherited magical outfits. Yet these men are in better rapport with the spirit world than the layman.

This distinction between the shaman and the seer has been, to a certain extent, anticipated by Boas ("America and the Old World," Congrès International des Américanistes, Göteborg, 27, 1925), who writes: "The belief in obsession is a most characteristic form of belief in the Old World—where it occurs practically everywhere. On the other hand it seems quite foreign to the beliefs of American tribes. Ideas of personal contact between man and supernatural beings are quite frequent, but obsession and with it the various forms of exorcism do not seem to occur. The spirits may attack man, but they do not enter his body." I have made use of the term possession, and not obsession. Furthermore, I have not classified the difference between the two types of medicine-man as belonging to the New and Old World, respectively, but rather as belonging to an archaic and a more recent culture stratum. Possession does not occur practically everywhere in the Old World. Even in Indonesia itself it is lacking in the islands west of Sumatra, in Borneo, and no doubt elsewhere. On the other hand, it is not certain that possession is not to be found among the tribes of the Northwest in America. The reason why I must differ in opinion with Boas lies perhaps in the fact that he has only taken one attribute of the "possession concept," that of the disease factor.

⁶ J. F. K. Hansen, *De Groep Noord en Zuid Pagh van de Mentawai-Eilanden. Bijdragen tot de Taal, Land en Volkenkunde van Nederlandsch-Indie*, 174, 1915.

concept of *punen* and its attendant ideas is known elsewhere in the cultural region of southeast Asia. Thus the Bontok Igorot have their rest days.⁷ More strikingly similar, however, are the *pena* and attendant *gena* (taboos) of the Angami Naga of Assam. During these periods the unit of the village holding the festival is rendered isolated and all work in the fields forbidden.⁸ It is therefore only the severity of the Mentawai *punen* system, and the extent to which it has influenced all of the institutions of the people, which make it exceptional.

Among the occasions on which *punen* are held may be included: the building of a new communal house (*uma*), the choice of a new priest, the making of a new field, the spilling of blood within the village, an epidemic in the village, when a tree falls in the community, and after the killing of a sacrificial animal, monkey, deer or sea-turtle. The duration of a *punen* at the time of the founding of a new *uma* or at the election of a new priest is so long (lasting at least nine years) that these two events are usually held simultaneously. If a priest dies, his successor is not chosen until a new *uma* is erected, and some married man fills the position temporarily. Family or personal *punen*, that is *lia*, are held at the time of sickness in the household, marriage, adoption of children, the making of a boat or family field, etc. It may be said that all children have to be adopted, but this is done in the family itself. In case the father is married to the mother, he will adopt the children. Otherwise the father or mother's brother of the woman will adopt the children. The ceremony, with all of its taboos, lasts nine months. Adoption is necessary in order to give the child its legal rights in inheritance.

A *punen* is initiated by the ceremonial washing of the hair of the participants, and the adoption of gala decorations. All work in the fields is then stopped, and strangers are denied access to the *uma*. The main ceremonial acts of every *punen* are the slaughter of pigs and chickens, accompanied by the sacrifice of the livers and haruspication. During the invocation accompanying

⁷ A. E. Jenks, *The Bontoc Igorot*. Ethnological Survey Publications, 1: 206. Manila, 1905.

⁸ J. H. Hutton, *The Angami Nagas*, 192, 1921.

every sacrifice, the souls of the people of the *uma* are invoked to return and remain by their owners. During the first nights of the *punen*, dancing takes place by the seers. The dance is for the purpose of pleasing the spirits, and is held in imitation of various birds and animals. During the latter part of the *punen*, hunts for monkeys and deer are made, and the sea-turtle is sought for by placing large nets (*djarik*). During the time of *punen* the men sleep in the *uma*, for all sexual intercourse is taboo. No special ceremony concludes a *punen*, but the men simply resume their fishing on the sea, the women their work in the fields.

At the time of any *punen* of importance, all the work of the people has to be initiated by the priest. Thus, no boats can be built until a first boat is constructed by the priest and his assistants and then consecrated. The same thing is true of the first making of fields, fishing, *djurut* making,⁹ hunting, etc. This feature of the *punen* system causes the prolongation of the ceremony, for in case of any bad omen, such as an earthquake or sickness in the village, the work of initiation is delayed. In the family *lia* (small *punen*) accompanying marriage or adoption, various kinds of work have to be initiated and consecrated in much the same fashion. Finally, at the time of the making of a new *uma*, all of the youths who have never been initiated to an *uma* undergo initiation. The initiation of the youths is called *eneget*. This initiation is for the purpose of placing the youths under the protection of the guardian spirits of the *uma*. For each youth taken in, a pig must be sacrificed. Two pigs are sacrificed for each boy, and one pig for each girl. The youths are then given a ceremonial bath, and blown on by the priest. These acts are accompanied by a blessing. Adults who wish to join an *uma* different from their own are forced to give a pig for *punen* before leaving their old *uma*, and another pig upon entering the new *uma*.

Considering the Mentawai *punen* system from a theoretical point of view, it seems probable that the concept arose from the

⁹ *Djurut* is an unfermented drink used by the people of Mentawai. It is made from coconut milk and sugar-cane juice.

lia, or family system. That is to say, it was the house father (*ukui*) who alone originally made the sacrifice, and this was done for the blood family, the original unit. Later, with the coming in of the communal house, the families became partially merged in the *uma*, or larger division, and the priest (*rimata*) became the officiating head, or father, of the community. The older *lia*, or family system, has never become lost. Not only is the *lia* alone the prevailing form of ceremony at ordinary family functions, births, adoptions, and mild cases of sickness, but it is also true that for every *punen* feast and sacrifice there must also be a family sacrifice. That is, each house father must carry back a portion of the meat from the communal house, perform a sacrifice, and consume it with his own family, in his own home. At the time of sacrifice, in the communal house, all of the meat is divided equally amongst the house fathers. The meat is not eaten in the communal house (*uma*), but is brought home to the family houses (*lalep*), where another sacrifice is made, and the meat is eaten there.

Another consideration which causes me to assume the priority of the family *lia*, is the prevailing spirit of communism among the members of the village unit (the *uma*). The members of the *uma* are, as it were, an enlarged family, with the *rimata* (priest) as their father. Just as in a family all goods are equally divided among the members, so in the *uma*, during *punen* time, all products of the hunt or fishing expeditions are equally divided, the priest receiving the same share as the others. Contributions for the sacrifice, moreover, when not for the purpose of expiating an individual fault, are equally leveled, and this again tends to create an equality in the ownership of domestic animals. With the exception of certain insignia of office worn by the seers and priest when officiating (including chicken feathers worn by the priest) all clothing must be of the same kind during a *punen* period. During other periods, not much variation is shown in clothing, even at the present day.

It therefore seems probable that the *punen* system originated from a family method of sacrifice. Fastening itself upon a culture originally barren in ceremonial usage, it became extended under

the guidance of the seers,¹⁰ and presently permeated all aspects of Mentawai culture. Death, marriage, puberty, sickness, and the initiation of all methods of work, became mere aspects of *punen* ritual. Government, through a system of fines or ostracism, became a part of *punen* supervision. Communism, inherent in earlier family groupings, became ritually retained during *punen* periods. The *punen* system brings enforced idleness, prolonged abstention from sexual intercourse for longer periods than are known perhaps to any other people on earth, intermittent periods of feast and famine, and an utter inability of the people to absorb foreign elements of culture, such as the rearing of non-sacrificial animals (as cattle), or the cultivation of rice, which requires steady labor. On the other hand, it has lasted because of the insistence of the seers, who play upon the credulity of the people. Likewise, it appeals to the group feelings of the people, keeping them united in a brotherhood of faith, a common ownership of material possessions, and an equality of rank and prestige.¹¹

I will now discuss the family itself, that being the smallest unit in Mentawai social organization. In order to avoid the use of circumlocutions I will hereafter use the following native words without translation: *uma*, communal house, division of village; *lalep*, family house; *rusuk*, house without altar; *punen*, religious festival of people of *uma*; *lia*, family religious festival.

Kinship terms.—It must be remarked in the first place, that there is no "Malayan" system of kinship. Morgan very incorrectly assumed the existence of a simple kinship system by generation, which was comparable to the Polynesian, and which extended over the whole of Indonesia.¹² Such a concept could only hold true of the Philippines, Borneo, Celebes, and the Moluccas, where

¹⁰ The seers are the chief profiteers of the *punen*, especially when the sacrifices are given for the purpose of curing. They and the priests do little work beyond the ceremonial. In a written account of shamanism in Mentawai, which I received from two seers, these men claimed that it was because of the spirit communications coming through the seers that the people of Mentawai have so many taboos.

¹¹ So great is the feeling of equality in Mentawai, that if a man excels in the hunt or fishing, he is liable to be accused of witchcraft and put to death.

¹² L. H. Morgan, *Ancient Society*, 418.

sib systems are lacking. Sumatra, with the exception of the low nomadic tribes, has either patrilineal or matrilineal sibs. The islands to the west of Sumatra have, in general, sib systems. In Java it seems probable that earlier sib systems have been wiped out by the higher culture of the peoples. In Mentawai itself the kinship terms are such as could be used in a sib system, but no trace of such a system is existent.

Kruyt has already published the Mentawai kinship terminology.¹³ I have checked this up, and am giving some additions.

The word *ukui* is used in Pageh for father. It also indicates that a man belongs to the married men's age class. Father's sister's husband and mother's sister's husband are also spoken of as *ukui*. The word *ama* (a more general term for father in Indonesian) is used in Siberut. In Pageh the word *ama* is only used in compounds indicating father, as *logat si-ama-et*, a child who has a human father, or a human being. *Ina* is the common word for mother throughout the Mentawai islands. Father's brother's wife is also called *ina*. A man calls his father's sister *ina* in address. *Ta-ina*, not mother, is used in address for son or daughter.

Uncles are differentiated from father and from each other. *Badja* is the term for father's brother. This term is also applied to any old man or woman, the root being old. Thus, *pu-babadja*, to live to an old age. The paternal uncle, however, is not fully differentiated from the father, for both *ukui* and *ama* are used in terms of address. Mother's brother is *kamaman*, and the reciprocal used in address is *ta-kamaman*. Father's sister is called *kameinan* and mother's sister *kalabai*. According to Kruyt, mother's brother and mother's sister are addressed also by their sister's children as *ukui* and *ina*. A specially close relationship exists only between a boy and his *kamaman*. A man calls his nephews or nieces through his sister *bua*. The verb form of the word *bua*, *bua-ake*, means to bear fruit. A child can speak of his grandparents as *si-bubuakat*. The nephews and nieces through a man's brother are called *momoi*. A woman reverses the words *bua*

¹³ Alb. C. Kruyt, De Mentawaiers. Tijdschrift voor Indische Taal, Land en Volkenkunde, 2 ff, 1923.

and *momoi*, depending on whether the children are through a brother or sister.

A man calls his brother, and a woman calls her sister, *alei*. This same term can be used for a parallel cousin of the same sex, thus a father's brother's child, or a mother's sister's child. The same word is used for friend. *Sara-ina*, one mother, is a more common name for brother or sister, and is also used as a term for friend. This term is used very broadly, even in addressing animals. Any person who can neither be addressed as a relative nor as a friend (personal names are not used in address) is considered a stranger (*sa-sareu*, one from a distance) and is an actual or potential enemy. A brother speaks of his sister, or a sister of her brother, as *maniu*. But a man speaks of his brother, or a woman of her sister, as *si-lat* (meaning the other side of the body). In address the age of the sibling is considered when a man speaks to his brother or a woman to her sister: thus, elder sibling is *kebu*; and younger, *bagi*. The word *kebu* used in compound means elders, or ancestors, *tai-kebu-kat*. When two people are married, they are spoken of as *pu-kebu-kat*, *pu* being a verbal prefix. In Si Pora the word for brother is *saraket*, but in Pageh this term is only used when speaking of a dead brother.

The information which I received concerning cousins differs from that printed by Kruyt. Kruyt writes:

The children of my father's or of my mother's brother are my *patogan ama*; those of my father's or mother's sister, *patogan ina*. The children of a brother and of a sister are to each other *taluba*.

According to the information which I received from the natives' a village census of ten marriages in Matobe (Pageh), and information derived from Herr Börger, the children of two brothers are called *pa-togat-ama*. They call each other brother and sister, and are not supposed to marry. The children of two sisters are called *pa-togat-ina*. They do not call each other brother and sister, but seldom marry. The children of a brother and a sister do not call each other brother and sister. They seldom marry. It will be observed that my spelling of the first two terms differs from that of Kruyt. While the orthography of Kruyt defies translation, the first two terms as given to me mean the children of a father

and his brother, and the children of a mother and her sister. In the ten marriages recorded at Matobe, one was between cross-cousins, the children of a brother and sister. In another marriage the two fathers were *pa-togat-ama*, and the man and wife called each other brother and sister.

Children and youths are classified according to age. They are not usually spoken of, or addressed, by name. A child in general is spoken of as *toga*. Then there are a number of terms for little boys and girls used in address. Boys may be called *si-rou*, *puisu*, *si-ruc*, etc. Girls may be called *si-djidji*, when under one year of age, when older *si-oiso*, *rogai*, *loiboi*, etc. An unmarried man is spoken of as *si-lainge*, *lainge* meaning a beautiful body. An unmarried woman is spoken of as *si-oko*. A married man is called *ukui*, or father. A married woman *si-ka-lalep*, the one in the house. In Pageh a man and woman will live together for some time, and may have children, before marriage. A man will speak of the woman he is keeping in this way as his *mandri*, and the man is spoken of by the woman as *mandri*. From secondary usage the term means relatives in general, especially husband or wife. After the death of a near relative, one again changes one's age status. A child without elders is addressed as *lulusai*. A widow or widower is called *si-lumang*. The word *teteu* however is the more common for a widow or widower, both in reference and in address. When the man marries again, his children call him *ukui*. A grandfather or grandmother is also called *teteu*, although, according to Kruyt, he or she may be addressed by the children as father or mother. The child speaks of his grandparents as *si-bubua*. A person speaks of his grandchildren as *punu teteu*, *punu* meaning "in place of." In address the children are called *ta-teteu* by the grandparents. Finally any bereaved person is spoken of as *pailot*, although, more specifically, this means a man who has lost a brother or wife. A person who has lost all of his or her children is called *si-botok*.

Taking up next relatives by affinity, we find that parents-in-law are called *tali-ku* (my thread). Son-in-law or daughter-in-law are also called *tali-ku*. The brother of a man's wife, or the husband of a man's sister is his *lakut*. The brother or sister of a woman's

husband is his *cira*. The wife of a man's brother is also his *cira*. The husbands of two sisters call each other *sa-ulu*. The words *sa-ulu* and *sa-cira* are also used for a blood related family. The word *epu* can mean either parents, or relatives in general. The inmates of a household are referred to as *sunga lalep*, one household.

The kinship system as outlined above stresses age classes. Not only is a distinction made between children, youths above puberty, and married people, but a further distinction is made in cases of bereaved persons. These distinctions are rendered necessary by religious custom. Married men are under many more taboos than single men. When a man becomes a widower, he is no longer an *ukui* and hence must receive a change of relationship term. The need for this change is clearly indicated in the case of seer or priest, since these men cannot even practise their office if unmarried.

It has been shown that a distinction is made between the mother's relatives and the father's relatives. The mother's brother, *kamaman*, is especially close, in Pageh, to his nephews. In the stories it is always the maternal uncle and not the father who is the natural companion of the boys. A maternal uncle must also allow his nephews and nieces the right to gather the products of his fields, along with his own brothers and children. The paternal uncle is not sharply differentiated from the father, since they are both addressed in the same manner. Cross-cousins are allowed to marry each other, but there is no compulsion. According to Kruyt, children of the same mother but of different fathers are allowed to marry, provided they come from different families. This would show that descent is counted primarily in the male line.

Personal names.—Personal names are changed frequently in Mentawei, as in Polynesia. If a person dies, the survivors of the same name must change their names. When a person becomes bereaved by the loss of a near relative, he or she goes into mourning. While the bereaved person is in mourning he loses his name, being called *teten*, or some similar title. During the period of mourning the bereaved person must lay aside all ornament, and abstain from attending *pumen*. The ghost of the dead is believed

to render the bereaved person unclean. At the end of the period of mourning the bereaved person is ceremonially washed, a *lia* is held, and the person assumes a new name. A man or woman who loses a spouse mourns until he or she marries again. In case there is no remarriage the person retains the title *teleu*. A man or woman who becomes a seer assumes a new name. He will however frequently change this name.

A child is given its first name before its fourth month. Either the father or the mother gives the name. A nickname may also be given. A person's family cannot be inferred from his name, although these may be ancestral. The name of a forefather or grandfather is frequently assumed, provided the member of the elder generation is already dead. A person who is about to die will change his name, so as not to carry it down into the grave with him. The name which a dead person bore can never be used or uttered again. To do this is a curse, since the name is ghost-contaminated. In former days it would have occasioned a fight. To further illustrate the close connection between ghosts and names, the case may be mentioned, as given by Kruyt, in which the elders not only change their names at the death of a child, but also in the event that subsequently a brother or sister of the dead child becomes sick. A seer then comes in and gives the elders new names. The only cause of sickness and death in Mentawai (outside of visible natural causes and some forms of witchcraft) is soul-abstraction by ghosts. Hence name-changing in Mentawai is fundamentally a form of ghost avoidance.

It is difficult to tell sex by the Mentawai names. Women however are more apt to be named after flowers. A short list of names is here given, as collected by Börger in Pageh. No guarantee can be presented that the names are not nicknames. The Mentawai people are reserved about giving their names, since these can be used in witchcraft.

Names of men

Si Ngena-katiri	He who waits on the upper river.
Si Sara-mata	The one-eyed.
Si Soibo-mei	He who goes in the evening.
Si Gaba-bulau	He who looks for money.
Si Sarat-mulaibo	He who is always speaking.

Si Tuitui-ake-ina	He who chases away his mother
Si Ta-maila	He who is not ashamed of himself
Si Gaba-punen	He who looks for <i>punen</i> (long life).
Si Telu-malainge	He who is three times beautiful.
Si Maletuak	A variety of bat.
Si Mairank	A variety of fish.
Si Manjang	An eagle.

Names of women

Si Ta-anai-si-ake-nia	She who has no one there to give her anything.
Si Ogo	The flower.
Si Itjo-tubunia	She who looks at her own body.
Si Oba-osa	She who wishes to be diligent
Si Sarat-sinogai	She only is called.

It may finally be remarked that no record is kept of the deeds of ancestors nor of their names. Hence it is impossible to collect genealogies or historic traditions. All the Mentawai stories have nameless heroes. Either the hero is simply called a man, *simanteu*, or else the name is descriptive of an achievement, as Segemulaibi, "he who climbed up on a rattan."

Marriage.—While marriage is still by purchase in Siberut, in Pageh the custom is not practised, or rather is said to have fallen into disuse. In one village of North Pageh, Saumangania, bride-purchase is practised. The name for the bride-price is *patalagaat*, that which is placed in the middle. Of course, with the payment of a bride-price the peculiar feature of Mentawai marriage, the preliminary living together of the couple in a *rusuk*, is absent. While all the writers on Pageh are in agreement that the bride-price is the older of the two customs, and this seems the general opinion of the natives themselves, yet in my mind there is considerable room for doubt. No mention is made of bride-purchase in Mentawai stories. Further, the idea of rigid bride-purchase seems somewhat alien to Mentawai, where both a strong patrilineal power is lacking, and the idea of purchase does not enter into other fields of social or economic life. Besides, in Siberut, the bride-purchase, according to Kruyt, is enacted in extreme form. If the husband dies before the price is completely paid, his brothers assume the debt. Now in Nias a rigid patriarchal power is coupled with bride-purchase, and it may well be assumed that the latter

cultural feature was diffused to the north of the Mentawai islands, that is, Siberut.

Marriage in Pageh is matrilocal as to village. In the ten marriages reported from Matobe, eight took place in the same village, and two men married into the village. The general rule is that women do not leave their village to marry, for if they did so they would lose possession of their taro fields. It very often happens that men marry the women for their fields. Now in patriarchal societies, such as the Batak or Nias, marriage is patrilocal and inheritance patrilineal. Matrilocality and rigid bride-purchase cannot consistently be coupled together, and I know of no society where they are found in common. There is no evidence in Pageh that men formerly owned the taro fields, or that marriage was originally patrilocal.

Taking up now the regular mode of Mentawai marriage, we find that this can be divided into two periods. In the first period the man and woman sleep together, but are not allowed to eat together. For want of a better designation, I will call this period betrothal. In the second period, after a marriage *lia* has been performed, the couple sleep and eat together. The husband then becomes an *ukui* or house father. While the couple are still betrothed they must sleep together in a *rusuk*, since the man cannot visit his mistress at the home of her parents. Any children which are born are adopted (*pipi*) by the father of the woman, or if the father is not available, by the woman's maternal uncle. When the couple prepare to marry, the man must first lay out a banana field, and build a *lulep* (house) with the aid of his wife's family. Then after marriage, the children are readopted by the parents.

Girls are often engaged when quite young. This is called *turu-ake-nen*. The man goes to the mother and obtains her promise for the girl. No present is given, however, at this time. When the girl is older, the man actually becomes engaged (*sere*) to her. He then gives some beads, cloth, and armbands to the mother. If the mother accepts, she sends her daughter the next day to meet the boy in his field hut. Even if the mother does not accept, the girl is liable to go anyway. Both of these forms of engagements are

considered binding, and the mother is supposed thereafter to keep other men from her daughter. The first form occurs only if the daughter is very young.

Either girls or men may be the owners of *rusuk*. It is in these forms of houses that the betrothed pair cook and sleep. They eat, however, in the homes of their parents. Young men may visit each other in the *rusuk*, provided they do it openly. Actually, as far as adultery is concerned, the engaged pair are as good as married. A man may desert his betrothed and take another girl. This however is very much looked down upon by the people.

While a man is living with his betrothed in *rusuk*, he is supposed to do some work for the girl's parents in their field. He is also supposed to keep the girl supplied with cloth, baskets, and ornaments. According to Börger, while the man is in *rusuk*, he must avoid the father and mother of his bride. That is, he must not speak to them. The girl must avoid the mother of the man, but not the father. After marriage there are no restrictions of this nature. While marriage itself in Mentawai is strictly monogamous, yet during the *rusuk* period a man may have intercourse with all the sisters in a family. The keeping of a woman in a *rusuk* is not altogether an open affair. The man and the woman never enter together. Usually the woman goes in first, and then sometime after the man follows.

The reason for the prolonged period of betrothal before marriage lies in the many taboos to which married men are subjected. They are not allowed to kill pigs or chickens, fell trees, ram in the earth for planting poles, to eat squirrels, coconut rats, etc. If they break any of the taboos the children would become sick.

The most common reason for marriage as given in Matobe was that the elders of the woman either died or left the village. Then there remained no one to look after the children. The next most important reason was the desire of the man to gain possession of the fields of the woman. In two cases the reason given by the man for marriage was his desire to become a seer. As already pointed out, a seer must be a married man.

It is usually the woman who desires a marriage to take place. She does not however tell the man directly, as she would be

ashamed to do this. If however she already has two or three children, she may say to her friends, "I have so much trouble, it is almost as if my children have no father." Then the man is told that he must marry the woman. According to the census taken at Matobe, one third of the total number of children were born out of wedlock.

When it is decided that the young pair will marry, and after the groom has the necessary house, domestic animals, baskets, etc., to render marital life economically feasible, a group of the relatives of the man, under the leadership of the father of the groom or the paternal uncle, go to the dwelling of the girl. Here a stereotyped conversation follows. The father of the man asks for the girl for his son, and the father of the girl accepts, depreciating, however, the marriageable qualities of his daughter.

Then a date is set, and in preparation for the marriage *lia*, wood, food, and grated sago as chicken food are prepared. After this the people ceremonially wash their hair (*magiri*). A preliminary visit which is held at the house (*lalep*) of the girl takes place in the evening. The next morning the actual ceremony takes place at the house of the brother of the groom, who performs the ceremony. The wife of this man brings in the bride.

The central feature of the Mentawai marriage is the eating together of groom and bride. Heretofore the couple had never eaten together. After this ceremony the pair must always eat together in their *lalep*. For a man or wife to eat separately would be a sin; this sin has a special name, *masoilo*, and arouses the anger of the spirits of the altar. The exact manner in which the bride and groom partake of their first food in common, is for the officiating brother to divide a cooked white chicken egg in half, giving one portion to the groom and one to the bride. After the egg is eaten, a general feast follows. The name of the egg used in the marriage ceremony is *pasailiat kabei*, "to change the house hand."

After this marriage meal the men and women go separately to bathe in the river. On their way back they gather sacred flowers for the altar (*buluat*). Then the old flowers (*katsaila*) are removed from the house altar and scattered over the house, the new flowers being put in their place. Next the people oil their bodies, and make

them yellow with powdered curry berry, as decoration for the *lia*. The officiating brother then sacrifices eggs and yam (*laiket*) to the spirits of the altar, accompanied by suitable invocation. Next he takes a white chicken and passes it over the heads of the married couple. This is called *lia-ake*, to make *lia*. The invocation spoken is as follows,

Akoï	lia mai	gougou	sisasa tubu-nia
Here is	our lia	a chicken	that can fly up by itself,
Siagai pato manua.		Aili-ake-nen mai	samanku samba tatoga.
that knows the morning.		So may my wife and children be.	

In other words, the wife and children should be like the chicken. For the chicken flies straight, knows when it is morning, and is, in general, a wise bird. After the invocation the chicken is killed, sprinkled with water, singed, and the liver inspected for omen taking.¹⁴

The remainder of the *lia* is performed by the married couple, aided by the brother. The affair lasts for a month or two. Every kind of food used must be obtained, and sacrificed at the altar of the new house. Remnants from the new fields, boats, and new work tools must also be consecrated by being sprinkled with water in the *uma*. Special foods that must be caught and sacrificed are shrimps and crabs. The idea is that these give the young couple long life, due to their habit of changing their skins. The bouquet of flowers before the altar must also be changed in the new home, since these sacred plants are supposed to contain the souls of the dwellers of the *lalep*. Finally, the woman must be taken into the *uma* of the man, if the marriage takes place in the same village, or the man taken into the *uma* of the woman, if he be a stranger to the village. This involves a short *punen* period, and the killing of a pig.

*Pregnancy and child-birth.*¹⁵—When a woman becomes pregnant she is relieved of all heavy work. She is also subjected to a number of taboos. She cannot go near a dead animal, for fear of killing

¹⁴ The Mentawai islanders are not allowed to let blood drip on the ground. So chickens are killed by wringing their necks and pigs by spearing, so that they bleed to death internally.

¹⁵ The information given by Kruyt, *op. cit.*, 41, is complete and reliable on these topics, and I am here giving a summary of his investigation.

the foetus. She cannot sit or run in the sunshine, or sit with her back to the fire. She cannot tie knots, plant taro, or wash sago. Certain foods are also forbidden to the woman. No trace of the *couvade* appears, nor is the married man placed under many new restrictions at this time. He must not however go hunting.

While the woman is pregnant her husband must abstain from sexual intercourse with her, nor can he again approach her until some time after the birth of the child. While the woman is pregnant she is only allowed to come into contact with married men. Even her own brothers, if they be unmarried, are not allowed access to the house.

There are no midwives in Mentawai, but a number of women aid at the time of a birth. They support the woman, who gives birth to the child in a sitting position. When the event does not go off smoothly, everything in the house is opened, and all knots are untied. If in spite of these measures the child is late in arrival, the people say that it is because the woman has broken a *punen* taboo. Then, if the condition of the woman continues to be serious, a seer is summoned. Sacrifices are made, a half going to the seer as his payment, and a cure effected in the usual manner. The seer brings with him his bells, a basin of water, and plants with life-giving qualities. The seer tinkles his bells, sings incantations, and urges his guardian spirits, perhaps the wood spirits (*tai-ka-leleu*), to descend into the water. The plants are mashed up and put into the water, and the woman is then made to drink some of it, the remainder being poured over her as a bath. Finally the soul of the woman is invoked to return, and the cure is at an end.

After the child is born the navel string is cut with a knife by the women. The placenta is covered with ashes, placed in a bamboo cooker, and preserved above the fireplace. Children born dead, *si-laelae*, are cast out into the wilderness. If the mother dies in childbirth, the child is strangled and buried with her. Otherwise the mother would come back looking for the child. The ghost of such a mother is considered more dangerous than other ghosts, but the body is disposed of in the usual manner, being either deposited on a platform or buried. In Nias, when a mother gives birth to twins, the pair are usually killed, but in

Mentawai the lives of both are spared. No great harm is thought to have been done. Some people think, however, in the case of girl and boy twins, that the pair will not live long, because they have come into too close contact with each other in the womb.

The day after the birth of the child, the mother brings the suckling to the river, and remains squatting in the water the entire day with the child in her arms. She only goes home to eat. She does this for three months, except when it rains. Until the child is old enough to begin learning to walk, it is never allowed to touch the ground. The word used for caring for children is *uka*, which also means to hold. Either the father or mother must be in constant attendance on young children, holding them in their arms.

The adoption of the child.—After the birth of a child, the mother can resume work as soon as her condition allows. The person who adopts the child, however, must observe *lia* for at least ten months. If the couple are married, it is the father who adopts (*pipi*) the child, otherwise the father of the woman. The delay caused by the adoption *lia* furnishes another argument against early marriage in Pageh.

One or two days after the child is born, the first *lia* takes place. This is called *lia kabe-bela*, "*lia* for the hand coming out." Chickens are killed in sacrifice, and the child is given its first talisman (*ngalou*). The father obtains wood, and cuts it as small as matches. These are wrapped in red calico, and hung around the neck of the child.

After this the father has to initiate all kinds of his work in the usual ceremonial manner. For one month the father must only fish, the next hunt, then make *tapa*, then start in work on his fields, finally either build a boat or make sago. Three months are spent in preparing the decorations for the child, its brass wrist bands, arm bands, and tail of leaves. The brass ornaments are, of course, imported, but the time is spent in consecrating the ornaments. At the time of attaching the final ornament to the child, the leaf tail, a special *lia* is held, *lia koirit alai*, "*The lia* for the putting away of the hair." At the beginning of this *lia*, the hair of the child is cut, especially around the neck and behind the

ears. This hair is then wrapped in a leaf of the sacred plant *bobolo* (*Dracaena*) and placed in a bamboo cooker. In this cooker the hair of all the children of the family is kept and the cooker is inherited in the family. After this *lia* the hair on the crown of the head can never be cut, for fear of losing the soul.

When the child is five months of age it receives its second talisman, *ngalou panake*, the shutting talisman. From then on it can eat all kinds of food without injury to itself. The talisman is called "shutting," because it is supposed to close in the soul to the body of the child. At this time the child is also given further decorations, including strings of glass beads, and the hair of its head again cut. In order to strengthen the power of the second talisman, two monkeys have to be obtained. The first monkey killed is called *loket*, or to entice. The skull of this monkey is hung up in the *uma* as usual. This skull, as well as all other deer and monkey skulls in the *uma*, are supposed to lure the wild animals of the jungle, so that they can readily be caught. At time of *punen*, the souls of the wild animals are summoned. They then come up a special ladder, the spirit ladder, and enter the *uma*. The second monkey shot is called *seukatnia*, the cooked one. The cooked flesh of this monkey is rubbed on the child, "in order to warm the talisman." Finally after the child has been taken to the field, and a *lia* held there, and after all forms of work have been properly initiated, the *lia* for adoption is at an end. The ordinary time for this *lia* is ten months, but if the child is taken sick in the meantime, the affair will last longer. During the course of the *lia* the man holding it, and his wife, are unable to have sexual intercourse, or to attend to their ordinary work. As a result, their fields run to weeds. Still, the proper form of *lia* is held to be a necessity, for without it the child is not regarded as legitimate, and cannot inherit.

It may be said of Mentawai ritual in general, and this statement would hold for all primitive or isolated peoples, that the elaborateness of their ceremonial system gained its chance for development due to lack of economic competition and absence of alien mental outlook. Once tobacco, cloth, and oil for lamps were introduced, the natives of Mentawai had other aims to strive for,

other work to perform, than that merely prescribed by their religious system. With alien goods necessarily came alien and critical ideas. The Mentawei *puncn* is no longer the same, either in length or in strictness of observance, as that of former days. The natives themselves are well aware of this fact, and regard the past as the Golden Age, when *puncn* were real *puncn*, and the amount of sacrifices furnished mighty feasts to the spirits.

Married life.—Since every married man becomes an *ukui*, or house priest, married life in Mentawei is in itself somewhat of a sacrament. Hence it is not surprising to find that divorce is either absent, or at least very rare. I heard of only one case of divorce in Pageh, and that was occasioned by the husband's turning Christian. The altar was desecrated, the man placed outside of the *uma*, and the wife considered that she had no choice but that of taking her children and fleeing. Naturally the felicity of married life is no greater in Pageh than elsewhere, and wives, when displeased, are apt to run away; husbands, to avoid their spouses. In the history of ten marriages in Matobe, three of the wives had on occasion run away from their husbands. One of the wives ran away five times, another three times. The second wife stayed away for a period of five months on one occasion. In the case of a wife's running away at her own will, it is not in accordance with custom for the husband to seek her return. She must do this of her own accord.

Adultery is said to have been formerly punished by death, now by the confiscation of property by the family of the wronged party. I heard of no certain cases of adultery in Matobe. One woman was said to have committed the sin with her grown-up stepson. But this was mere gossip. Adultery certainly was very rare.

One finds that in Mentawei the same good qualities are respected in both men and women, the same bad qualities despised. A popular Mentawean is one who obeys the *puncn* rules, is sociable, a good worker, generous to members of the *uma* and to relatives, good-tempered and jovial. People who steal, change boundaries, indulge in witchcraft, or are greedy, are held in disfavor.

NOTES ON TWO MAYA ASTRONOMIC OBSERVATORIES

By OLIVER RICKETSON, Jr.

THE archaeological investigations which the Carnegie Institution of Washington has been carrying out for some years in the Maya area have resulted in an increased understanding of the actual astronomical knowledge developed by the Maya previous to any contact with Europeans. As is well known, their perfection of an accurate and complicated calendric system is an achievement unique among the indigenous races of America. The origin of this system is still shrouded in conjecture, but in two instances it has been found that the Maya erected buildings or markers, the construction and location of which can not be attributed to any purpose other than the intentional recording of accurate astronomic data.

The foundations for the study of these data were first laid by the suggestion of Dr. S. G. Morley that the Department of Terrestrial Magnetism of the Carnegie Institution of Washington cooperate with the Middle American Research expeditions in locating the exact geographic positions of certain ruins in the Peten district of Guatemala—the heart of the so-called “Old Empire” of the Maya. As a result, an expedition composed of the writer and Mr. Witherow A. Love was sent out in 1923. Eleven important Maya ruins were visited, and their geographic positions determined as follows:

	<i>Lat. N.</i>	<i>Long. W.</i>	<i>Altitude above sea level (ft.)</i>	<i>Variation</i>
Tayasál	16°56.4'	89°53.8'	497	7°01.5'E.
Itzimté	16°56.0'	90°11.4'		7°06.6'E.
Ixlú	16°58.6'	89°41.7'	497	
Tikál	17°13.3'	89°38.5'	922	
Uolantun	17°10.8'	89°36.8'		
Uaxactun	17°23.8'	89°38.4'	675	7°00'E.
Nakum	17°10.3'	89°26.3'	703	
Naranjo	17°07.4'	89° 5.7'	896	
Ucanal	16°58.8'	89°21.8'	647	6°57.4'E.
Xmakabatun	17°31.2'	89°14.2'	915	6°55.2'E.
Xultun	17°30.5'	89°24.5'	844	
El Cayo	17°10.2'	89°04.1'	286	6°47.1'E.
(town)				6°55.0'E.

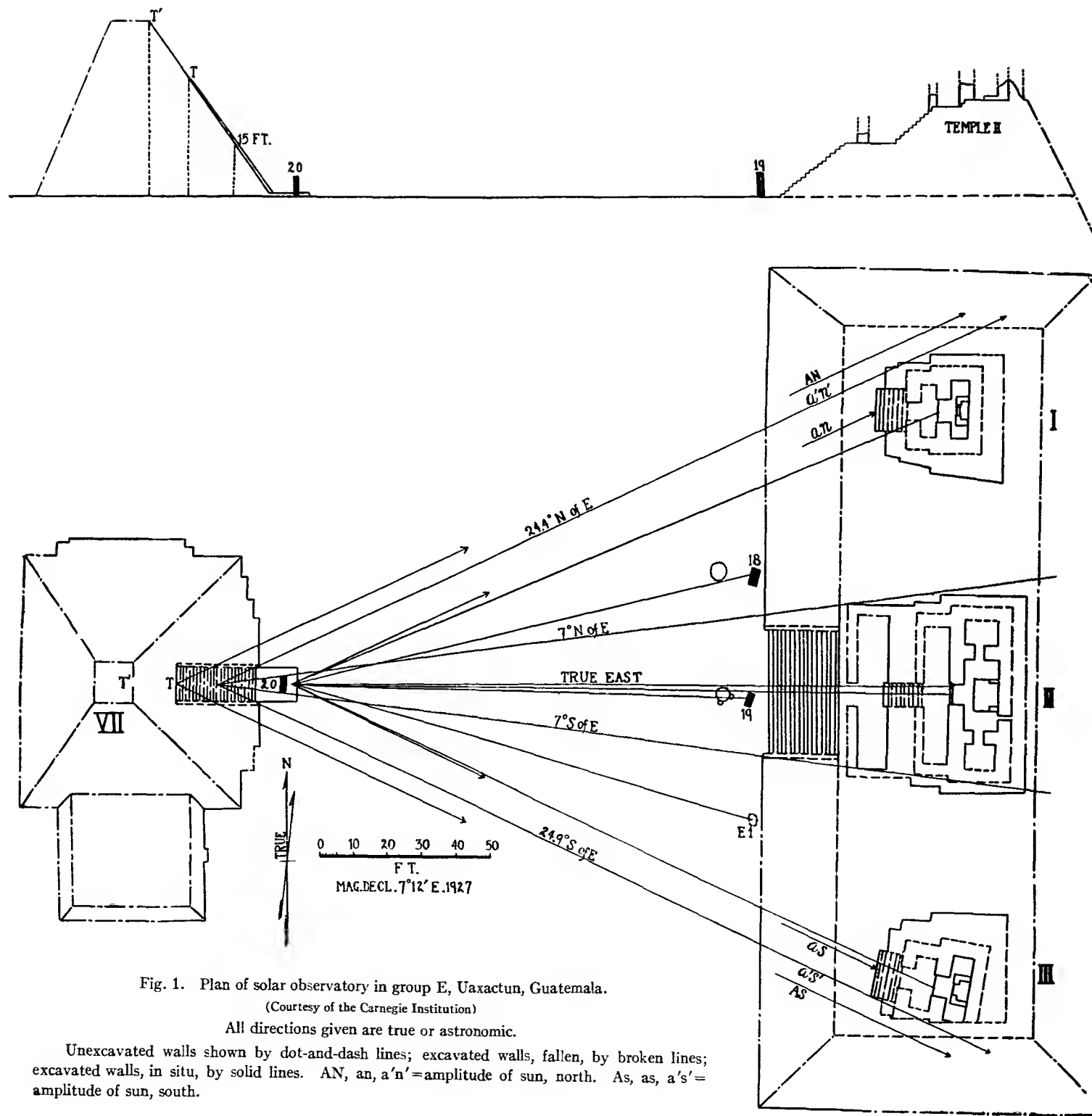


Fig. 1. Plan of solar observatory in group E, Uaxactun, Guatemala.

(Courtesy of the Carnegie Institution)

All directions given are true or astronomic.

Unexcavated walls shown by dot-and-dash lines; excavated walls, fallen, by broken lines; excavated walls, in situ, by solid lines. AN , $a'n'$ = amplitude of sun, north. AS , $a's'$ = amplitude of sun, south.

Data in regard to the following places or ruins were also obtained by the Department of Terrestrial Magnetism, during the years indicated:

	<i>Lat. N.</i>	<i>Long. E.</i>	<i>Magn. variation</i>	<i>Year</i>
Yaxha (Peten district, Guatemala)	17°04.5'	270°38'	5°57.4'E.	1909
Macanche (Peten district, Guatemala)	16°59.0'	270°25'		1909
Copan (Honduras)	14°50.4'	270°55'	7°08 4'E.	1926
		<i>Long. W.</i>	<i>Elev. in ft.</i>	
Copan, stela 10	14°51.0'	89°08.1'	2779	1926
Copan, stela 12	14°50.4'	89°14.5'	2553	1926
Copan, church	14°50.7'	89°06.4'	1958	1926

Of these, Uaxactun attracted much attention because of its prominent central position and the fact that it contains the oldest date so far discovered on a stela at any site in the Maya area, namely 8.14.10.13.15 8 Men 8 Kayab (approximately 68 A.D.). It was first reported in 1916. In 1924 another expedition was sent out for a preliminary survey of this site. This expedition, under the immediate charge of Mr. Frans Blom, felled a great deal of "bush" and thoroughly mapped the ruined city. As a result, measurements were made of group E, as it stood before excavation. This group consists of a plaza surrounded by four main mounds (see fig. 1). The map subsequently made by Mr. Blom shows this plaza as 316 feet long, north and south, by 133 feet wide, east and west, with structures E I, E II, and E III as small temple-mounds, completely in ruins, on a large platform mound, 230 feet long and 100 feet wide, bounding the east side of the plaza, and structure E VII as an unusually steep-sided pyramid on the west side, so completely ruined that it was almost conical in shape, with a much lower, flat platform extending from it to the south. It was noted that from the apex of structure E VII an observer could see well over the apices of structures E I, E II, and E III, and that to the east of this group the terrain slopes away quite steeply. With the forest felled, an observer on mound E VII could see the rising sun on the horizon in relation to mounds E I, E II, and E III.

Directly in front of mound E VII stands stela 20, and in front of the substructure mound on which stand E I, E II, and E III stand stelae 18, 19, and E 1. Mr. Blom made observations with a Brunton compass, correcting for the variation, and discovered that the lines-of-sight from stela 20 to the apices of mounds E I, E II, and E III—i.e., their approximate centers, since there was no time for the excavation necessary to determine their actual outlines—suggested important astronomic directions, being approximately 24° north of east, true east, and 24° south of east, respectively.¹

These data the Department of Terrestrial Magnetism of the Carnegie Institution examined. It was found that the amplitudes of sunrise for this longitude and latitude are:

<i>True horizon</i>	<i>Visible horizon</i>	<i>Remarks</i>
24.6°	24.4°	Extreme values north of east on June 22
24.6°	24.9°	Extreme values south of east on Dec. 22

It would appear therefore that the lines-of-sight from stela 20 to the centers of mounds E I, E II, and E III were to mark the summer and winter solstices respectively, and the east line to mark the vernal and autumnal equinoxes.

In 1926 the Carnegie Institution of Washington initiated a five-year project at Uaxactun, and the first excavation called for on the program was an intensive examination of this group. Work was concentrated on mounds E I, E II, E III, and E VII.²

The plaza of group E, upon excavation in 1927, was found to be 308' 5" in length, north and south, and 150' 10.5" wide, east and west, bounded on the east by a platform mound 234' 8" long at the bottom and 15' high, on which stand the very ruined temples E I, E II, and E III. Mound E VII, on the west side of the plaza, is fifty feet high, with extremely steep sides; it was found to be without a structure on its top and with the stairway on the east side. The construction of this pyramid was of the crudest sort, consisting of rough, broken stones covered with crumbling plaster. Under this disappointing exterior however an earlier temple was discovered, built in terraces, of well-wrought

¹ For full report, see Yearbook No. 23, Carnegie Institution of Washington, 1924.

² For full report, see Yearbook No. 26, Carnegie Institution of Washington, 1927.

stone covered with plaster still in excellent condition. Less than a week before the forced withdrawal of the expedition, on account of the exhaustion of the water supply, a mask of stucco over a stone core, about eight feet square, was uncovered on the eastern face of this inner temple, just north of the staircase of the outer temple. Further excavations will undoubtedly reveal other similar masks symmetrically placed, and hopes are entertained that this temple may yield pottery and ceremonial objects intact and important data on the relation of the Maya ritual to its calendar.

Temples E I, E II, and E III, on the east side of the plaza were also excavated so that their outlines could be followed on all sides but the back. They were found to face west—that is, towards the plaza—and each stood on a platform ten feet high. The substructure mound is 15' high, as already noted, and is ascended by a central stairway, 34' 6" wide, consisting of 16 steps. The ground plans of these temples may be seen in the diagram.

The directions from stela 20, taken with a theodolite and using a correction of $7^{\circ} 12'$ E. for the magnetic declination of the compass in 1927, are as follows:

<i>From stela 20 to</i>	<i>True bearing</i>	<i>Degrees of arc from true east</i>	<i>Amplitudes of sun at Uxactun</i>
Center of inner doorway, E I	N68°00'E	22°57'N	24.4° on June 22 (summer solstice)
Stela 18 (center)	N77°12'E		
Center of inner doorway, E II	S89°03'E		
North jamb of inner doorway, E II	True east	0°0'	Vernal and autumnal equinoxes
Stela 19 (center)	S88°15'E		
Stela E I (hole)	S74°18'E		
Center of inner doorway, E III	S65°18'E	24°42'S	24.9° on Dec. 22 (winter solstice)

As a check, angles of 24.4° to the north of, and 24.9° to the south of the true east-west line were measured off in the field from stela 20. These lines are labelled *a n* (amplitude north) and *a s* (amplitude south) in the diagram. Although they strike

temples E I and E III more or less in the center, they do not appear particularly significant, for we must remember that an observer standing at stela 20, on plaza level, could not make an horizon observation of the sun, on account of the substructure mound fifteen feet high which is directly across his line of vision.

Upon completion of the ground plan of group E on paper, however, similar angles were laid off from the point T, at the top of the stairway on pyramid E VII. These angles as extended are shown by the lines *AN* and *AS* on the diagram, falling well beyond the limits of temples E I and E III, respectively. Since the walls of these temples, which are especially dilapidated in respect to their outer veneer of surface stone, must lie between the lines *an* and *AN*, and *as* and *AS* respectively, it is evident that the amplitudes of the sun, from some point on the midline of the stairway of pyramid E VII, between the top and the bottom, would of necessity coincide with the northwest corner of temple E I and the southwest corner of temple E III. A point fifteen feet above plaza level was chosen, and from this were projected the lines *a'n'* and *a's'*. It is interesting to note how closely they approximate the probable corners of temples E I and E III, respectively. The exact and absolute restoration of these corners is not possible, but this is relatively insignificant; the important thing is that an observer, by ascending or descending the stairs on pyramid E VII could bring his eye in line with the corners of these buildings and the rising sun on the horizon at the time of the solstices.

These facts determined, the directions to the corners of temple E II, from the same point, were examined. The only corner left intact in situ was the northwest corner of the temple platform. This lies 7° north of true east. Assistance was again sought from the Department of Terrestrial Magnetism of the Carnegie Institution, which had already supplied the astronomic data used above. So far as could be determined by them, points 7° to the north of and 7° to the south of the true east had no astronomic significance other than marking the dates of sunrise on April 6 and September 6, and March 3 and October 10, respectively. If we compare these dates with the dates carved on stelae

18, 19, and 20 in group E, interpreting the latter according to the day-for-day correlation of Maya and Christian chronology as advanced by Dr. H. J. Spinden, we find a close approximation of the April date, as follows:

Stela 18	8.16.0.0.0.	3 Ahau 8 Kankin	April 5, 97 A. D.
Stela 19	8.16.0.0.0.	3 Ahau 8 Kankin	April 5, 97 A. D.
Stela 20	9.3.0.0.0.	2 Ahau 8 Muan	April 3, 235 A. D.

Having taken the northwest corner of the platform under temple E II as the only intact corner available, any error is the maximum. Any point to the south—i.e., towards the location of the corner of the temple itself—will place the date earlier in April. To be exact, the diurnal northward march of the sun at this season in the latitude of Uaxactun is approximately 24'. The Department of Terrestrial Magnetism has tentatively suggested that this discrepancy of one day might be accounted for by the fact that the difference between a $365\frac{1}{4}$ day year over a solar year of 365 days amounts to just one day in 128 years, and calls attention to the difference in years between the earlier and the later dates in group E, 97 A.D. and 235 A.D., a period of 138 years.

The work in group E at Uaxactun is by no means concluded, and further examination may lead to the discovery of primary temples in mounds other than E VII. These might throw more light on the subject. One question however can appropriately be raised at this time, and that is whether this complex of buildings is a true *observatory*, or planned to mark the already known directions of the four significant annual positions of the sun? The writer is strongly in favor of the latter theory, for the following reasons:

1. The dates carved on the stelae in group E offer irrefutable proof of such an advanced stage in the development of the Maya astronomic and calendric systems that natural phenomena as usual as the solstices and equinoxes must have been well-known and accepted facts, understood at least by the initiated

2. If the solstitial and equinoctial phenomena were well known to the Maya at the time of the setting up of the stelae, and if we are willing to concede approximate contemporaneity between the dates of erection of the stelae and of the mounds concerned, then the erection of so many buildings

as an *observatory* was an unnecessarily complicated business. Four perpendicular sticks a few inches high, correctly set up on a properly oriented board, would have served the same purpose.

The writer believes that these buildings were erected in their respective positions as temples dedicated to the four seasons, or the four most significant positions of the sun in the course of the solar year, and that their erection is to be more closely associated with geomancy than with astronomy.

A second structure which has yielded information of astronomical importance is of a totally different type. This is the so-called Caracol, at Chichen Itza, in Yucatan. In 1924, the extremely precarious condition of this building was noted, and early the following season the writer was assigned the task of supervising its repair. This work was done with the greatest care, not only because the moving of any stone might materially affect the position and consequent scientific value of the *ventana*, or window, which had long been suspected of features of astronomical importance, but also because the delicate position of the worked stones on the north side offered no slight risk to the two masons engaged in consolidating them in situ with cement. To have moved or jarred any of these stones would have brought down the whole window with possibly fatal results.

As is well known, the Caracol is a circular tower with four outer doors facing the cardinal points of the compass. Within is a circular corridor from which four more doors, facing midway between the cardinal points, lead into another circular corridor. This inner circular corridor surrounds a masonry core, inside which a small, spiral staircase leads to the upper part of the building.³ Unfortunately, the upper terminus of the staircase cannot be proved, for, a little more than halfway to the level of the window, the whole northern section of the building has completely fallen. Near the very top of the structure is a flat area, from which opens the window above-mentioned.

In the process of repairing this building it was necessary to remove rocks and worked stone which were loosened and about

³ W. H. Holmes, *The Ancient Cities of Mexico*, 1897, illustrates the structure very completely.

Fig. 2 Diagram illustrating relative position of

to fall, in order to remove the loose dirt before applying the cement. In doing this the presence of two more windows was discovered. One of these had been suspected, from an examination of Maudsley's photographs of the Caracol, though the exterior opening is scarcely discernible from the ground, and was quite inaccessible before repair of the whole top. The largest and best known window was therefore called window 1, its neighbor, facing to the southwest, window 2, and the last, facing south, window 3. The diagram (fig. 2) illustrates their relative position and directions; it is not however drawn to scale.

It is the writer's belief that these three windows opened from a rectangular room to which the hidden spiral staircase gave access. How many more windows, if any, opened from the other two sides of this hypothetical room no one will ever be able to say, for the northern and eastern sections have completely fallen. Not even a hypothetical restoration is possible here; in fact, we can only conjecture, because it seems reasonable, that there was an observers' room and that the spiral staircase led into it.

As to the results obtained from careful measurements of the three windows still in situ there can be no doubt. The directions of these windows and of their diagonals were necessarily taken with a Brunton compass, as the extraordinarily cramped quarters precluded the use of a theodolite, though an attempt to use one was made. The significance of the results is further enhanced by the fact that the measurements and observations were made by a man without even a rudimentary knowledge of astronomy, that is, the writer. The data were submitted to the Department of Terrestrial Magnetism, with the suggestion that the important lines-of-sight were not the actual directions of the windows themselves but of their diagonals. This conclusion was reached when the sun was observed to set on March 21st, 1924 (the vernal equinox) along the line A (see fig. 2). The results of this investigation are best described in a letter from the director of the Department of Terrestrial Magnetism, Dr. Louis A. Bauer, from which I quote:

. . . . I inclose a diagram of directions or azimuths of the sun and moon at the time of their setting at Chichen Itza when their declinations for the

year are greatest; also a tracing to fit over the diagram, showing the azimuths of the windows and their respective jambs.

In the following notes the jambs are designated *right* and *left* as when *looking out*, and azimuths or directions are astronomical:

- a* Window 1. The direction, *right inner* jamb to *left outer* jamb is *due west*.
- b* Window 3. The direction, *right inner* jamb to *left outer* jamb is *due south*.
- c* Window 2. The direction, *left inner* jamb to *right outer* jamb is in azimuth 59° reckoned westward from south, or in *amplitude* 31° .
- d* Window 1. The direction, *left inner* jamb to *right outer* jamb has the same amplitude north of west (31°) as *c* is south of west.

The amplitude of the sun at setting on March 21, was 0° or due west, which accords with the direction under *a*. On April 28 its amplitude was 15° north of west, hence it appeared exactly down the mid-line of window 1, as you observed. The sun's amplitude on June 21 at Chichen Itza is 25° , consequently, it will not be seen setting in the direction given under *d* as you anticipated, but about 5° further to the left or westward.

The directions *c* and *d* are the directions of the moon at setting when its ascending node is in the vernal equinox; that is, when its declination is a maximum, about $28^\circ 36'$. Nothing apparently marks the direction of its setting, $9\frac{1}{2}$ years later when its maximum declination for the year is reduced to about $18^\circ 25'$ and its amplitudes become 20° north or south.

Window 3 is not high enough for direct observations of the sun at noon or the moon at Meridian passages; hence if it was constructed for such observations, it must have been the shadows of the jambs cast by the sun or moon that were noted. Directions *a*, *b*, *c*, and *d* mark astronomical directions of local importance whether intentionally or unwittingly, but two directions remain for which I can assign no reason at the present time.

Another interesting feature of the Caracol was discovered by the removal of dirt and debris at this time, namely a circular, stone-lined, vertical hole extending down through the core of the building. This shaft was eight to ten inches in diameter, the walls of roughly finished stone, but owing to obstructions its depth could not be ascertained. Water poured into it seeped out through the core, but this is of no practical significance. Complete excavation of the whole building will be necessary to determine whether this shaft served a ceremonial, utilitarian, or an astro-nomic purpose. Should it be found to lead to a hitherto unknown room, perhaps beneath in the substructure, its use for taking a meridian sight of a celestial body would be a possibility.

These two discoveries are of importance in that they have opened a new and more practical field for the study of Maya astronomy. It is sincerely to be hoped that all towers in the Maya area, whether square or circular (of both types only a few instances are known), will be closely examined in the near future, and that all investigators, either when visiting old sites or exploring new ones, will take accurate and copious bearings whenever the opportunity offers or the faintest suspicion arises that the arrangement of buildings or structural features may have been designed in accordance with astronomical directions.

68 AVON HILL STREET,
CAMBRIDGE, MASSACHUSETTS

NOTES ON THE PIMA, 1926

BY ELSIE CLEWS PARSONS

IN DECEMBER, 1926, I paid a brief visit to the Pima at Sacaton and Sacaton flats. Students of the Pueblo Indians had observed ritual similarities in Pima culture as described by Russell which seemed to call for special study. Were these similarities merely scattering or did they point to underlying resemblances of cult which Russell did not appreciate? Russell visited Pimeria in 1901-2. He was unfamiliar with the Pueblos about whom in recent years there has been a considerable increase of information.

In Russell's day comparatively little attention was paid by American anthropologists to systems of relationship and his account of the Pima in this respect is inadequate. In Melissa Jones, one of Russell's interpreters, I was glad to find a competent genealogist.

My survey then was twofold, becoming an analysis of the Pima relationship system and a comparison of Pima and Pueblo ceremonialism. A more comprehensive comparison might well be made, as well as a study of the changes in Pima life caused by contact with the whites, changes which have been rapid during the last three decades. Comparisons of Pima and Apache, and of Pima and Papago, are also desirable.

PIMA KIN, CLAN, AND MOIETY

Kin

Kinship is reckoned in both paternal and maternal lines through the fifth generation. No kinship terms are used in address between the first and fifth generations, but the fifth generation is referred to as "leg feather" (*kahio wopo*). Within these five generations marriage is precluded. To marry within the relationship¹ was "like going on a road with danger on it;" besides it would

¹ My relation, sing., *nyachu*, pl., *nyahachuni*.

arouse disgust. These bounds of exogamy and of reckoning relationship are thought of precisely and definitely. On the other hand there appear to be few precise duties or obligations for kindred in daily or customary life. Avoidance is not practised, there is no joking-relationship, there are no specific kinship responsibilities at birth, naming, puberty, marriage, or death. I did hear that when very sick a person would be visited by his relatives who would open the visit with an exchange of terms of relationship. Terms of relationship are exchanged also in ritual smoking and when concluding a narrative.² When Kisto^c finished telling us the tale about Buzzard's daughters, narrator and interpreter shook hands, exchanging terms of relationship—which happened to be *työ'ös*, mother's brother (actually the narrator was a remote collateral) and *mal'*, sister's child.

Whatever the theory about a lack of kinship solidarity, close acquaintance with interrelated families would show, no doubt, some measure of responsibility. I recall one little incident. On one of our visits the house door was closed against our approach. Now the senior woman in that household was related to Melissa, their paternal grandmothers were sisters. The woman and Melissa called each other *sis*^c and *sikur*^c, older (sister) and younger (sister). So before we left, Melissa scolded her *sikur*^c for hiding from her, was she not her relation?

Connections through marriage are addressed by name. "I call him by his name, he is no relation to me," was the regular answer to enquiry about addressing an uncle by marriage (or an aunt, etc.). The Pueblo practice of applying the term to the relation by affinity corresponding to that applied to the connecting blood relative is quite unfamiliar. There is no rule against marriage with a deceased wife's sister or a deceased husband's brother, although Melissa stated very positively that for her part she would never entertain the idea of marrying her husband's brothers, as she felt as if they were her own. The descriptive terms for relations by affinity were not etymologized, but those between generations appeared to be based on a principle of what

² Cf. Frank Russell, The Pima Indians. B. A. E. Ann. Rep., 26, 199 (1904-5).

we may call grandparent teknonymy. Take, for example, the reciprocal *nyipahamatâk* which is quite plainly my daughter's child's father.

In the terminology, paternal and maternal lines are distinguished throughout, in both parent and grandparent generations as well as in the speaker's generation. There are distinct terms for the father and mother of each parent, for paternal and maternal uncles and aunts, and for paternal and maternal great uncles and aunts, for the two sets of parallel cousins, the children of two brothers and the children of two sisters, and for cross-cousins, the children of a brother and sister. Brother-sister terms are also used in the vocative for all these cousins. Strictly speaking, there are no brother-sister terms, only two terms for elder and younger. In case of cousins,³ seniority is reckoned through the age relationship of the connecting relatives, back to the second, third or fourth generation. In the compounded terms for the grandparent generation only the terms for father's older brother or older sister are used. Sex is expressed in the parent and grandparent generations, but not in the speaker's generation, nor in most of the junior reciprocals. To sum up, the outstanding principles of the terminology are the principle of descent and the principle of seniority. Pima kinship terminology furnishes a striking illustration of how in the nomenclature of kinship, classifying principles may be found which are consistently and elaborately carried out in divorce from any relation to the contemporaneous social organization.⁴

³ Throughout the analysis I am restricting the use of this English term to members of the same generation.

⁴ Excepting perhaps in connection with the tribal chieftaincy which appears to be hereditary, from father to eldest son, if the son is qualified. Anton Azul (see gen. II, 1) was chief during the Gold Rush of 1849. His eldest son, Antonio (gen. II, 6) who was chief in 1901 (Russell, 196) succeeded him (prior to 1864, *ib.*), and he was succeeded by his son, Antonito (gen. II, 17) who died in 1923. Harry Azul or Brown Eagle (gen. II, 32), a man of fifty-five, is Antonito's oldest son, and "Old Harry" was talked of at his father's death for chief. But Harry is a drunkard; "he is not a good man" for chief; "they will never choose him." As for the next son, George (gen. II, 35), "he is too young, his father never taught him anything." And so, since 1923 the office has been vacant. "Perhaps they will never have a chief again."

List of Kinship Terms

<i>âk</i>	father, desc.
<i>ta²al</i>	mother
<i>alkuur</i>	son, m.sp.
<i>ailitak</i>	daughter, m.sp.
<i>matʳ</i>	son, daughter, w.sp.
<i>wiaʳnak</i>	brother, sister, desc.
<i>sisʳ</i>	older brother, older sister, voc. ⁵
<i>sikurʳ</i>	younger brother, younger sister, voc. ⁶
<i>köle⁷</i>	father's older brother. Recip. for m., <i>akööl</i> ; for w., <i>chuʳchuʳ</i>
<i>hakitʳ</i>	father's younger brother. Recip., <i>hakyimatʳ</i> (<i>nyakyimatʳ</i>)
<i>työ²ös</i>	mother's older brother. Recip., <i>matʳ</i>
<i>tatal</i>	mother's younger brother. Recip., <i>ma²e</i>
<i>âkâks⁷</i>	father's older sister. Recip., <i>chuʳchuʳ</i>
<i>wowötʳ</i>	father's younger sister. Recip., <i>hakyimatʳ</i> (<i>nyakyimatʳ</i>)
<i>tatâks</i>	mother's older sister. Recip., <i>matʳ</i>
<i>jiskʳ</i>	mother's younger sister. Recip., <i>ma²e</i>
<i>vosk</i>	father's father. Recip., <i>vosomat</i>
<i>voskköle</i>	father's father's brother
<i>voskâks</i>	father's father's sister
<i>pa·pʳ</i>	mother's father. Recip., <i>pahamatʳ</i>
<i>pa·pʳköle</i>	mother's father's brother
<i>pa·pʳâks</i>	mother's father's sister
<i>kaʳk</i>	father's mother. Recip., <i>kahamat</i>
<i>kaʳkköle</i>	father's mother's brother
<i>kaʳkâks</i>	father's mother's sister
<i>hu²ul</i>	mother's mother. Recip., <i>mâs</i>
<i>hu²ulköle</i>	mother's mother's brother
<i>hu²ulâks</i>	mother's mother's sister
<i>viakol</i>	great-grandparent
<i>viashöt</i>	great-grandchild
<i>wiokökam</i>	father's brother's children. Recip. term
<i>â²eta</i>	sister's mother's children. Recip. term
<i>wö²maka</i>	father's sister's children and mother's brother's children
<i>kahio wopo</i>	Reciprocal between first and fifth generations

⁵ Obsolete descriptive, *nysiho²ki* (cf. Russell, 373).

⁶ Descriptive, *nyshurpüch*.

⁷ Preceded by "father word."

Genealogy I

- | | | | |
|--------------------------------------------------|-------------------------------------------|------------------------------------------------------|-------------------------------------------------------|
| 1. M. Nonoi, Coyote, <i>apkyā</i> _____ | 3. M. Sipörö, Coyote, <i>apkyā</i> _____ | 7. M. William, Coyote, <i>apkyā</i> , d. 1922_____ | 15. M. Frank, Coyote, <i>apkyā</i> , 24_____ |
| (Stirring) | +4. F. Sikachu, Buzzard, <i>vaaf</i> | +8. F. Hannah, Coyote, <i>apkyā</i> | |
| +2. F. Chörlis, Coyote, <i>apkyā</i> | | 9. F. Mary Melissa Jones, Coyote, <i>apkyā</i> _____ | 16. F. Lilian Jones, Buzzard, <i>ma'm</i> , 32_____ |
| | | +10. M. Solon Jones, Buzzard, <i>ma'm</i> | 21. M. Allen, 4 |
| | | d. 1918 | 17. M. George Truman Jones, Buzzard, <i>ma'm</i> , 20 |
| 5. F. Sa'vi, Coyote, <i>apkyā</i> _____ | 11. M. Vaniko, Buzzard, <i>okal</i> _____ | 18. F. Angelita Jones, Buzzard, <i>ma'm</i> | |
| +6. M. Kisto ^c , Buzzard, <i>okal</i> | +12. F. Blanche, _____ | 19. F. Dora, Buzzard, <i>okal</i> , 30_____ | 22. F. Annie |
| | Kiomerhahak (Striking leaves) | +20. M. Frank Jackson | (Maricopa) |
| | 13. M. _____, Buzzard, <i>okal</i> , d. | | |
| | 14. M. _____, Buzzard, <i>okal</i> , d. | | |

Genealogy II

- | | | | |
|----------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|
| 1. M. Anton Azul, Buzzard, <i>vaaf</i> _____ | 3. F. Juana, Buzzard, <i>vaaf</i> | 14. F. Emily, Buzzard, <i>ma'm</i> , 70_____ | 28. F. Lisa, Coyote, <i>a'pap</i> , d. |
| +2. F. Warup ^c , Buzzard, _____ | +4. M. _____, Buzzard, <i>ma'm</i> _____ | +M. Juan Lewis, Coyote, <i>a'pap</i> , d. | 29. M. Tiwit, Coyote, <i>a'pap</i> , d. |
| | +5. M. _____, Coyote, <i>a'pap</i> _____ | 15. M. Usif, Coyote, <i>a'pap</i> , d._____ | 30. M. Vigibwi, Coyote, <i>a'pap</i> , 60_____ |
| | | +16. F. Savemalle, Coyote, _____ | (Eagle-down take) |
| | | | +31. F. Paula (Papago) |
| 6. M. Antonio Azul, Buzzard, <i>vaaf</i> _____ | 17. M. Antonito Azul, Buzzard, <i>vaaf</i> , d. 1923 | | 52. M. Albert, Coyote, <i>a'pap</i> |
| (övaat'ka) | (Hutuantuwahim, west moving) | | 53. F. Susie, Coyote, <i>a'pap</i> |
| +7. F. Kató ^o ka, Buzzard, _____ | 18. +F. Fiop, Buzzard, <i>ma'm</i> , _____ | 32. M. Harry, Buzzard, <i>vaaf</i> , 55_____ | 54. M. Simon, Coyote, <i>a'pap</i> |
| (Bow shadow) | | (Mohatikipa'ak, brown eagle) | 55. M. Paul, Buzzard, <i>vaaf</i> |
| | | +33. F. Maria, Coyote, <i>a'pap</i> , d. | 56. F. Esther, Buzzard, <i>vaaf</i> |
| | | +34. F. Annie (Oklahoma, Seneca) | |
| | 19. +F. Cholis, Coyote, <i>apkyā</i> d. 1921_____ | 35. M. George Azul, Buzzard, <i>vaaf</i> , 50_____ | 57. F. Edith, Buzzard, <i>vaaf</i> |
| | | (Ötrajik, inside hole) | 58. M. Keneth, Buzzard, <i>vaaf</i> |
| | | +36. F. Sarah, Coyote, <i>a'pap</i> | |
| | | (Kánsi) | |
| | | 37. M. Ábuáka, Buzzard, <i>vaaf</i> | |
| | | (Apache road) | |
| | | +38. F. Andelia, Buzzard, <i>ma'm</i> , d. | |
| | | 39. M. Roy, Buzzard, <i>vaaf</i> , 35 | |
| | | (Shakakokyöwa, line standing) | |
| | | 40. F. Sarah Johns, Buzzard, <i>vaaf</i> _____ | 59. F. Consuelo |
| | | +41. M. _____ (Mex.) | 60. M. Henry |
| | | +42. M. Thomas Johns | |
| 8. F. Luisa, Buzzard, <i>vaaf</i> _____ | 20. M. Peblo, Buzzard, <i>ma'm</i> , 77_____ | 43. F. Pedro, Buzzard, <i>ma'm</i> _____ | 61. M. Frank |
| +9. M. Micala, Buzzard, <i>ma'm</i> | +21. F. Luisa, Coyote, <i>apkyā</i> , d. | +44. M. Francisco (Papago) | |
| | | 45. F. Edith, Buzzard, <i>ma'm</i> , 26. | |
| | | +46. M. _____ (Pueblo, San Domingo) | |
| 10. F. Ho ^o ho ^o kyimale, Buzzard, <i>vaaf</i> _____ | 22. F. Lus, Coyote, <i>a'pap</i> | | |
| (Butterfly) | +23. M. Joe Mack, Coyote, <i>a'pap</i> | | |
| +11. M. Thomas, Coyote, <i>a'pap</i> | | | |
| 12. F. Sikachu, Buzzard, <i>vaaf</i> _____ | 24. M. William, Coyote, <i>apkyā</i> , d. 1922_____ | 47. M. Frank, Coyote, <i>apkyā</i> , 24. | |
| (Mary) | | | |
| +13. M. Sipörö, Coyote, <i>apkyā</i> | +25. F. Hannah, Coyote, <i>apkyā</i> | | |
| | 26. F. Mary Melissa Jones, Coyote, | | |
| | <i>apkyā</i> , 58_____ | 48. F. Lilian Jones, Buzzard, <i>ma'm</i> , 30_____ | 62. M. Allen, 4 |
| | +27. M. Solon Jones, Buzzard, <i>ma'm</i> , | | |
| | d. 1918 | 49. M. George Truman Jones, Buzzard, <i>ma'm</i> , 20 | |
| | | 50. F. Angelita Jones, Buzzard, <i>ma'm</i> | |

Terms for Relations by Marriage

<i>vosamejik</i>	daughter-in-law, m.sp. father-in-law, w.sp.
<i>kaamejik</i>	daughter-in-law, w.sp. mother-in-law, w.sp.
<i>nyipahamatâk</i>	son-in-law, m.sp. father-in-law, m.sp.
<i>moiýák</i>	son-in-law, w.sp.
<i>chuchumu</i>	mother-in-law, m.sp.
<i>kikhö'</i>	brother-in-law
<i>nyakimaich'ö</i>	older brother's wife
<i>chuchutöch'ö</i>	younger brother's wife

Application of Kinship Terms in Genealogical Tables

vaaf, ma'm, okalt, apkya, a'pap', father

Genealogy I

9 > 3 *apkya*, father
 16, 17 > 10, *ma'm* or *nyema*, father

ta'al, mother

Genealogy I

11 > 5, mother
 17 > 9, mother

maic', son, daughter, w.sp.; younger sister's child

Genealogy I

9 > 16, daughter, w.sp.
 9 > 17, son, w.sp.

Genealogy II

12 > 26, daughter, w.sp.
 6 > 26, younger sister's daughter, m.sp.
 3 > 26, younger sister's daughter, w.sp.

sis', older brother and sister and cousin of senior descent

Genealogy I

9 > 7, older brother
 17, 18 > 16, older sister
 17 > 15, mother's older brother's son
 16 > 15, mother's older brother's son. 16 is older than 15;
 but the father of 15 was older than the mother of 16.

Genealogy II

- 20 > 14, mother's older sister's daughter. 20 is older than 14; but the mother of 14 was older than the mother of 20.

sikur^c, younger brother and sister and cousin of junior descent

Genealogy I

- 7 > 9, younger sister
 16 > 17, younger brother
 9 > 11, father's younger sister's son
 17 > 19, mother's father's younger sister's son's daughter. 17 is younger than 19; but 19 is the descendant of the younger sister of the grandfather of 17.

Genealogy II

- 45 > 48, father's mother's younger sister's daughter's daughter. 45 is younger than 48; but his father's mother was older than the mother's mother of 48.

köle (compounded with "father word"), father's older brother and male cousin of senior descent

Genealogy I

- 17 > older brother of father, *nyema·köle*⁸

chu^c chu^c, younger brother's daughter, m.sp., younger brother's child and child of male cousin of junior descent, w.sp.

Genealogy I

- 9 > 19, father's younger sister's son's daughter, w.sp.

Genealogy II

- 14 > 32, mother's younger brother's son's son, w.sp.

hakyimat, older brother's child, senior male cousin's child

Genealogy I

- 9 > 15, older brother's son
 5 > 9, older brother's daughter

Genealogy II

- 26 > 32, 35, mother's older brother's son's son
 26 > 40, mother's older brother's son's daughter
 26 > 30, mother's older sister's son's son
 26 > 43, mother's older sister's son's daughter

tyó²os, mother's older brother, and male cousin of senior descent

⁸ Compounded with *ma m*.

Genealogy I

17 > 7, mother's older brother

Genealogy II

26 > 6, mother's older brother

tatal, mother's younger brother and male cousin of junior descent

Genealogy I

16 > 11, mother's father's younger sister's son

ma²e, older sister's child, senior female cousin's child

Genealogy I

11 > 16, mother's older brother's daughter's daughter

Genealogy II

26 > 28, 29, mother's older sister's daughter's children

âkâks, father's older sister and female cousin of senior descent

Genealogy I

17 > older sister of 10, *nvema-âks*⁹

19 > 9, *nya p k âks*,¹⁰ father's mother's older brother's daughter

wowôl^c, father's younger sister and female cousin of junior descent

Genealogy I

15 > 9, father's younger sister

9 > 5, father's younger sister

Genealogy II

35 > 26, father's father's younger sister's daughter

40 > 26, father's father's younger sister's daughter

30 > 26, father's mother's younger sister's daughter

tutâks, mother's older sister and female cousin of senior descent

Genealogy II

26 > 3, mother's older sister

jisk^c, mother's younger sister and female cousin of junior descent

Genealogy II

28, 29 > 26, mother's mother's younger sister's daughter

vosk, father's father

Genealogy I

9 > 1, father's father

⁹ Compounded with *ma'am*

¹⁰ Compounded with *apkya*

vosömat, son's child, m.sp., male cousin's son's child

Genealogy I

1 > 9, son's daughter, m.sp.

Genealogy II

17 > 57, 58, son's son and daughter, m.sp.

26 > 57, 58, mother's brother's son's son's son and daughter

26 > 51-54, mother's sister's son's son's children

voskâks, father's father's sister and female cousin

Genealogy II

57, 58 > 26, father's father's father's sister's daughter

51-54 > 26, father's father's mother's sister's daughter

pa·p^c, mother's father

Genealogy I

16 > 3, mother's father

Genealogy II

26 > 1, mother's father

pahamat, daughter's child, m.sp., brother's daughter's child, male cousin's daughter's child

Genealogy I

3 > 16, daughter's daughter, m.sp.

5 > 16, brother's daughter's daughter

9 > 22, father's sister's son's daughter's daughter

Genealogy II

1 > 26, daughter's daughter, m.sp.

26 > 59, 60, mother's brother's son's daughter's son and daughter

26 > 61, mother's sister's son's daughter's son

pa·p^câks, mother's father's sister and female cousin

Genealogy I

16 > 5, mother's father's sister

Genealogy II

61 > 26, mother's father's mother's sister's daughter

59, 60 > 26, mother's father's father's sister's daughter

ka^ck, father's mother

Genealogy I

9 > 2, father's mother

kahamat, son's child, w.sp.

Genealogy I

2 > 9, son's daughter, w.sp.

hu'ul,¹¹ mother's mother

Genealogy I

16 > 4, mother's mother

Genealogy II

26 > 2, mother's mother

mās, daughter's daughter, w.sp.

Genealogy I

4 > 16, daughter's daughter, w.sp.

Genealogy II

2 > 26, daughter's daughter, w.sp.

viakol, great-grandparent, brother, sister, cousin of great-grandparent

Genealogy I

16 > 1, mother's father's father

16 > 2, mother's father's mother

Genealogy II

45 > 1, father's mother's father

Child of

61 > 26, father's mother's father's mother's sister's daughter

viashöt, great-grandchild, great-grandchild of brother, sister, cousin

Genealogy I

1, 2 > 16, son's daughter's daughter

Genealogy II

26 > child of 61, mother's sister's son's daughter's son's child

â'eta, reciprocal between children of sisters

Genealogy II

26 > 15, 20, mother's sister's son

15, 20 > 26, mother's sister's daughter

26 > 14, 22, mother's sister's daughter

wö'makal, reciprocal between children of brother and sister

¹¹ Nursery term, *lu'lu'*. Allen, aged four, thus called genealogy II, 26.

Genealogy I

- 9 > 11, father's sister's son
 11 > 9, mother's brother's daughter
 17 > 15, mother's brother's son

Genealogy II

- 26 > 17, mother's brother's son
 17 > 26, father's sister's daughter

kahio wopo, reciprocal between first and fifth generations

Genealogy I

- 1 > 21, great-great-grandson

Genealogy II

- 62 > 1, great-great-grandfather

References in English to Kinship Terms

Our genealogist's accounts in English of how she reckoned or came by some of her kinship terms are significant enough of Melissa's classifying principles to be noted. "Juana, my mother's older sister, calls me just the same as my mother calls me." "Emily is like an older sister to me," Emily being Melissa's cousin of senior descent. "Lilian calls Frank [her mother's older brother's son] *sis*^c [older] because my brother is older than me." "Because Sâvi (my father's sister) was younger than Sipörö (my father), Vaniko is my *sikur*^c and Dora is George's *sikur*^c" "Peblo calls Emily *sis*^c because Luisa (Peblo's mother) was younger than Juana (Emily's mother)." "Emily calls Harry *chuuchut* and I call him *nyakamat*^c (*nyakyimat*^c), because Juana (Emily's mother) was older than Antonito (Harry's father), and my mother was younger." "Edith and Keneth I call just the same as their grandfather calls them," their grandfather being Melissa's cousin. "Consuelo and Henry I call *nyepâhamat*, because they come from a girl," by which Melissa meant that although they had the same grandfather as Edith and Keneth the term she and their grandfather used was different because he was their mother's, not their father's, father. . . . Of Dora, the child of Melissa's male cousin of junior descent, Melissa said, "She will have to call me by the way I call my father." (For Melissa is as older sister to Vaniko, Dora's father, hence

Dora must use the term for father's older sister. Now this is compounded of *âkâks* and the proper "father word," i. e., the word Melissa applies to her own father). . . . "Dora's child I call by Vaniko," another case of "as their grandfather calls them" (*pahamat*).

Clan

A peculiar trait in the kinship terminology is the use of the so-called "father words." In description the father is called *nyâk*; in address he is called by the name of his clan or name group: *vaaf*, *ma'm*, *okalt*, *apkya*, *a'pap*^c. As Thin Buckskin told Lloyd, "these bands were so called because it was by these names they called their fathers."¹²

Aside from classifying by descent, the "bands" or paternal clans have no functions whatsoever. They do not regulate marriage choices; they define no duties or obligations; they do not determine kinship (i. e., anyone outside of the five generations of recognized relationship is not thought of as a kinsman, even if he belongs to the same clan or name group, and no kinship term is applied; and, on the other hand, any one who is within the five generations of relationship *is* thought of as a kinsman, whatever his clan, and a kinship term is applied). In short the five clan names are mere names, like our own patronymics; nor can the five terms be translated. They have no meaning. According to Peblo Azul, it was Earth doctor or *dyosh* (sp. *dios*)¹³ who planned these groups.

Formerly the child of an Apache father or of a Mexican or white was buried alive. The bastard of a Pima is not "respected," although there is a tradition which would probably be revealed in the folk-tales, that such a one will become a great man, a chief. The Pima bastard takes the clan of his reputed father. It would be considered *impossible*, to use Melissa's vehement term, for a child's descent to be reckoned through his mother, whoever was his father, Pima or foreigner. This attitude, given the mixed marriages occurring today, is undoubtedly a factor in the disappearance of the moiety and clan which is taking place.

¹² Lloyd, 147.

¹³ See Russell, 251.

Moiety

The five clans are grouped by moiety. *Vaaf*, *ma'm*, and *okalt* belong in the Buzzard moiety; *apkya*, *a'pap*, in the Coyote moiety.¹⁴ For the clan I could find no generic name; the moiety is referred to by the same term that is used between cross-cousins—*wömaga*—*nyui wömaga* (Buzzard moiety or cross-cousins), *bana wömaga* (Coyote moiety or cross-cousins). Naturally one is sorely tempted to interpret this terminology as pointing to a sometime exogamy. Given exogamous paternal moieties, the children of a brother and sister would necessarily belong to different moieties.

But today, as already indicated in discussing the clan or subdivision of the moiety, the moiety does not determine marriage choices. The moiety is, however, somewhat more than a name. It conveys group self-consciousness. This expresses itself in bragging¹⁵ and formerly, at least, in fighting by way of hair-pulling. Buzzard people will say: "Buzzard is a great man, he wears black clothes like the President! Look at Coyote wearing his shabby clothes! He has nothing of any good, he searches for rotten meat!" Coyote people retort: "Coyote is a policeman. Don't you see that he wears a grey suit? He is always around when there is trouble, in order to make arrests. As for Buzzard he wears black like a Mexican woman in mourning for her husband with a red kerchief around her neck. Buzzard is just a fast woman. That is why she lost her husband and wears black." Buzzard people: "Buzzard is a great man; he always carries a gun! Coyote has nothing but a basket to carry rotten things!" Such bragging and "mean talk" may end in hair-pulling. It may start from a Buzzard or a Coyote killing the insect popularly called cow-killer¹⁶ which is associated with the opposite moiety,—the red cow-killer is associated with the Buzzards, the white and yellow cow-killer

¹⁴ Cf. Lloyd, 147. Russell groups *ma am* and *va'af* as Coyote, *âkol*, *a'pap*, *apuki*, as Vulture (p. 197).

¹⁵ How much so was illustrated when I enquired the moiety of Warup' (gen. II, 2), my informant's maternal grandmother. She answered: "I guess it was Buzzard, because I always heard my mother say her mother would brag of Buzzard."

¹⁶ Pima, *wihimor*, a kind of tarantula, according to Lloyd who saw it and correctly describes its status in the tribe (p. 163). Its bite is very poisonous. Russell erroneously refers to the insect as an ant.

with the Coyotes. A Buzzard woman is speaking: "We don't like to see that white bug. We will kill it. Then we begin to brag. Then the Coyotes will fight us, pull our hair. We can't use our hands in any other way; we just pull each other's hair." Probably this gaming temper is generally confined today to the children. But one characteristic incident occurred a few years ago among adults. There was a dead coyote lying alongside the road. My informant had passed by and had seen it lying there. The next time she passed the place the coyote was propped up and dressed up as a woman. (This would have been done by a Buzzard, for each side calls the name-giver of the other side a woman.) The third time she passed by, the coyote's clothes had been changed into those of a man. (This would have been done by a Coyote.) The story of Coyote meddling at the Emergence was said to be a brag by Coyote people of Coyote's power. "When the world was new, people were coming out of a hole below; baskets were carrying everything up. 'Look! look! there is no end to them!' said Ban (Coyote). The carrying all stopped. That Coyote spoiled it. If he had not spoken, the carrying would have gone on; heavy things would have moved themselves by their own power. But Coyote spoiled it."¹⁷ Because of Coyote's laughter, Russell and Lloyd give the story,¹⁸ the earth closed and the third Coyote clan remained below.

PIMA AND PUEBLO CEREMONIALISM

The social organization of the Pima as just described is so different from that of the Pueblos of the West with their strong maternal exogamous clanship and moiety so weak as to be traceable merely in the ceremonial organization that a sense of dissimilarity of culture is at once aroused. Even when we turn to the eastern or northeastern Pueblos where clanship is weak,—among the Tewa a name merely,—and moiety marked, scant impression of similarity is made, clan and moiety patterns stamp so differently the general life. However, we may note that both among Pima and Tewa the moiety is paternal and that it does

¹⁷ Cf. Lloyd, 148.

¹⁸ Russell, 197; Lloyd, 148.

not control marriage choice. In kinship nomenclature there is also a degree of similarity between Tewa (and Taos) and Pima in their common emphasis upon the principle of seniority.

What of the ceremonial life? Among the Pueblos, as we know, it is complexly organized. There is an elaborate system of societies or sacerdotal chieftaincies, a comprehensive and fixed ceremonial calendar, and an all-pervasive ritual. Among the Pima ritual is restricted, and the ceremonies are (or were) few and loosely dated. With one exception the medicine men are unorganized. They are practitioners on their own, and, unlike the Pueblo, have undergone little or no initiation¹⁹ and also unlike the Pueblo, they are unrelated to other parts of the social scheme, to the relationship system or to government. Obviously, in their ceremonial systems as in their systems of relationship there is radical differentiation between Pima and Pueblos. On the other hand, similarities in ritual are conspicuous, as the following list indicates.

¹⁹ To the Pueblo student familiar with initiatory ceremonial, highly formal and social, the following narrative by Nantopoi, Feather Twist, of how he became a medicine man (*sai^ochukam*) will bring out some of the difference in character of the Pima from the Pueblo doctor. "When I was a boy as little as that little boy [pointing to a boy of four], I used to dream, and would run outdoors in the night. My parents would run after me. I began to feel I could see through everything. Darkness I could see through. Mountains I could see through. Water I could see through. There was always a light before my eyes. In my dreams a person came to me and led me around to show me what I should do as *sai^ochukam*. He led me in dream through the mountains. I could not be still in the night-time. That person was the *ma'ku* (doctor) who lived when the world was new. He taught me his songs. Of myself I made nothing new. All was from *ma'ku*. I was never taught by any other. All I know I was taught by the *ma'ku* who came to me in dream. From others I might have learned bad tricks, to kill people. I listened only to the one who came to me in the night. [Russell states, 254-257, that doctorship comes not only through dreams, but through paternal inheritance and through the experience of snake bite.] Some *sai^ochukam* live only a short time. I have lived long. For I have not tried to do more than I was taught to do. I have not twisted myself into trouble.

"Boys, two or three, have come and asked me to teach them. I enquired of them if they intended not to be mean to anybody, not to harm anybody, not to injure anybody's horse. [Cf. Russell, 267.] I said, 'If you agree not to do harm, go and sit in a certain place and I will sharpen a piece of wood and throw it at you. It will go through you and you will get some of my power.' [Cf. Russell, 257.] The boys all said, 'You put hard questions and conditions' and went off."

Pueblo and Pima Rites

- 1 Smoking for rain,²⁰ smoking the sick,²¹ smoking over sacrosanct objects.
2. Use of corn husk or cane cigarette in ritual smoking and as offering (Pima, Lloyd, 89).
3. Exchanging kinship terms in ritual smoking.²²
- 4 Use of anti-sunwise circuit,²³ and association of the directions with color ²⁴
- 5 Birds and animals associated with the color directions.
6. Four the favored numeral, in description or in planning an event.
7. Mnemonic stick: bird's tail feathers used in count.
8. Prayer-sticks²⁵ and prayer-feathers ²⁶
- 9 Arrowpoints which are believed to come from lightning, particularly white points.²⁷
10. Crystal to diagnose disease.
11. Sucking out disease or ailment
12. Eagle wing feathers used in exorcising.
13. Spitting or forcible exhaling in exorcising
14. Taboo on salt during critical periods ²⁸
15. Jugglery for magical growth of crops.²⁹

²⁰ For Pima, see Lloyd, 219-220, 230

²¹ Russell, 260. The doctor blows smoke also towards his own heart (E. C. P.), a form I do not know of among the Pueblos.

²² For Pima, see Lloyd, 221. Particularly marked in the western pueblos

²³ Pima: In smoking, beginning in the east (E. C. P.), with a request that those to whom the smoke is blown have pity (E. C. P.). The first whiff of cigarette smoke was puffed towards the sun (Russell, 251).

²⁴ Pima: east (white), north (yellow), west (black), south (blue); Zuñi, Hopi, Keres: east (white), north (yellow), west (blue), south (red); Isleta: east (white), north (black), west (yellow), south (blue); Tewa, Taos: north (blue), west (yellow),

²⁵ Pima and Zuñi: bundled in a set of four or more (Pima, Russell, 106-7, Lloyd, 136-7) Zuñi prayer-sticks are offered in many other ways also, but bundling is a characteristic not found in the other pueblos. Permanent prayer-sticks are also a feature common to Pima and Zuñi. Pima prayer-sticks were offered in springs, buried at the grave of a medicine man, and under the posts of a house, they were pressed on the person of a patient and used in warfare. (E. C. P.: also Lloyd, 135; Russell, 258, for burying prayer-sticks in field)

²⁶ Pima (Lloyd, 219), offered with a request or prayer; a common Pueblo feature.

²⁷ Recently the pole in the center of a thrashing floor at Sacaton was hit by lightning. "Somebody said that if we dug into the hole we would find a lightning stone, sharp and white." (E. C. P.) *White* arrowpoints are particularly valued in Isleta ritual.

²⁸ Marked in the western pueblos, not observed in the northeastern.

²⁹ Marked among the Hopi.

Lending themselves less easily to tabulation are certain theories or conceptions of religion or magic held in common by Pueblos and Pima. Both hold to the theory of homeopathic magic that disease is caused and cured by the same thing, and among both peoples foremost among the causers and curers of sickness are mammals, birds, and insects.³⁰

As the medicine-men get their powers through the animals it is logical enough that medicine-men are thought of as causing as well as curing disease, and this theory of their twofold character, maleficent and beneficent, is both Pueblo and Pima; but it is more emphasized among the Pima than among the Pueblo. The killing of Pima doctors held responsible for deaths or epidemics was not infrequent.³¹ For like reasons persons have been

³⁰ The Pueblo data are very scattered, or still in ms. but Stevenson has given them for Zuñi and Sia, and Dumarest for Cochiti. For the Pima, see Russell, 262-65. To this I would add a note from Melissa Jones. When Melissa was a little girl of ten living at Blackwater she had fainting-spells and her father summoned one who in his day was a great medicine-man, O'kota. Over Melissa he waved his eagle wing feathers, "to make it clear, like blowing away smoke." (Cf. Russell, 260). Then he looked into his crystal to find out what was the matter with her. He tied a bunch of downy owl feathers around her neck. (Fainting sickness is caused by Owl, Russell, 263). Also he put or seemed to put into her body the pointed butts of the peeled willow sticks called *ámina*, four of them, with downy eagle feathers. (Cf. Russell, 259). O'kota said to her father, "Now she will live as I live. My power will go into her. When I die, she will die" . . . "I did get well, but I did not die when he died," commented Melissa. She recalled O'kota blowing on her and singing. He did not suck, "but every *sai'chukam* does suck." (Cf. Russell, 261).

³¹ See Russell, 262. In one afternoon I met a young man whose father, a medicine-man, had been killed because he had caused dysentery in the children, having buried his "bundle" on the edge of the village, and a middle-aged woman whose brother had been killed as a maleficent medicine-man. The attitude of the companion who told me these histories struck me as quite different from that of the Pueblo towards either his ceremonialists or his witches. The difference appeared plainly on our visit to Feather Twist. With some derision Melissa first referred to him as having no teeth, because of his practice of taking fire into his mouth. (Cf. Russell, 259). She added that she no longer believed that he or any other *sai'chukam* could harm her. Still at another moment she said she would be afraid to stay over night with me in a house in the fields of Sacaton flats, lest the *sai'chukam* did something to the house which would make her sick and die. As we heard Feather Twist driving his horses with a load of wood on the road behind us Melissa exclaimed, "There he comes. Hear him call! He calls that way because he thinks as he is medicine-man he can pass by any one." She resented him, she laughed at him, and she was afraid of him. Now the Pueblo attitude towards ceremonialist or rather towards the ceremonialist reputed to be a witch, is one of much apprehension, but without admixture of derision or resentment, at least as distinct from hostility. It is a far more respectful attitude.

killed among the Pueblos, but these persons were not always doctors. Pueblo witches may or may not belong to the hierarchy, although it is plain from much scattered evidence that the hierarchist is more subject to suspicion of witchcraft than the layman. I advance the theory in this connection that Spanish conceptualism of witchcraft has been at play, influencing the Pueblos to hold that witchcraft may be practiced by any one. The Hopi, less subject to Spanish influence than the other Pueblo peoples and so somewhat of a touchstone as to what is of Spanish provenience, are comparatively unsuspicious of witchcraft by neighbors and relatives.

The Pima medicine-men are differentiated into disease doctors (*sai'chukam*) and doctors (*ma'kai*) for weather, crops, and war. Curing and weather control are distinctive functions also among the Pueblos. The differentiation at Zuñi between the rain-making fertility groups and the curing groups is particularly marked. The scalp ritual of Zuñi as a rain-making cult is also peculiarly comparable to Pima theory and practice. "When an Apache is killed it will rain," said Thin Buckskin.³² The Apache hair was kept in a jar in a cave, to be used in calling wind or rain.³³ I was told that scalps were kept in a special house in a basket or new piece of pottery. The scalps had life. If a solitary person approached, the scalps would whistle or make a noise, scaring anybody. The scalp keeper had to be an old man, the *chornym*, war chief.³⁴ The scalps kept in the kivas at Isleta are also said to be noisy. The Isletan scalps effect cures for toothache and for sickness from worry or longing. Pima scalps also effected cures.³⁵

I referred to the exceptional case of organization among Pima ceremonialists. This was in the Navichu cult, a mask cult for curing which is undoubtedly related to the Pueblo (and Navaho and Apache) mask or kachina cult.³⁶ I will give my notes on the

³² Lloyd, 185.

³³ *Ib.* 188.

³⁴ Smoker or war speaker, Russell translates. These officers were temporary, he says (p. 196); but he does not say who looked after the scalps.

³⁵ See Russell, 165. Also they caused paralysis of one side. Cf. Russell, 205. I am reminded of the "twisting sickness" caused and cured by the *woco him'tu*, a sometime warrior society of the Hopi.

³⁶ Throughout the Pueblos, masks are associated with the medicine societies. In

cult which, although scanty, bring out the ritual parallelism somewhat more plainly than the earlier accounts.

The impersonator of *navichu* is the head man or doctor and the office is or was hereditary, from father to son. There is another single mask, *kâksh'pakam*, who is the head of the group of eight or ten male impersonators called *vipinim*. These impersonators are visited by the *navichu* impersonator before sunrise and, "while still asleep," sprinkled with corn meal as a summons to participate.

The ceremony was held outdoors, in the day time. The *navichu* was the first out, making domiciliary visits to collect food and pigment for his ritual stick. It was he who assembled the paraphernalia at the place of curing to which the patient was to be brought. Navichu liked to have lots of children follow him to help carry his things. If a child fell, Navichu would whip or stroke him as he would the patient, otherwise the child's knee would swell up and the child would die. Melissa relates that when she was a child in Blackwater the *navichu* impersonator was her grandmother's brother. The family wanted her to follow behind him "so she could get the good of him, and not fall sick." But she was "scared of Navichu." He carried a bow and arrows. However, she followed him, but, being frightened, she looked at him and not where she was going and so fell into a hole. The other children cried out, "Navichu, somebody fall! Somebody fall!" But without waiting for Navichu to come and exorcise her, the little Melissa picked herself up and ran home. In later life when rheumatism developed in Melissa's knees her mother would say to her, "That is what you get from not letting that Navichu cure you!"

Navichu carried eagle wing feathers to clean (exorcise) with, also his stick. After drawing the sickness from the patient he shook the stick in the direction of the Apache, to the northeast. Navichu wore a long cotton garment, belted in, and a cotton

the western pueblos the independent kachina organizations have curing functions, although here as well as in the East their paramount function is rain-making and crop bringing. I learned of no rain-making function in connection with the Pima mask cult; but Russell states (p. 266) there was one.

cloth mask, the openings for the eyes painted. Sometimes two *navichu* came out. The mask of Kâksh'pakam was of gourd, red and white. Kâksh'pakam had a loud call, which he had to give four times before the *vipinim* could sing. He jumped up and down, he acted funny. The masks of the *vipinim* were also of gourd but less vivid than Kâksh'pakam's. These impersonations did not dance but stood in front of the patient, waving the colored stick about two and a half feet long each carried, in front of him and passing it over the patient, from his head down. The patient would pass his hand over the impersonation and then on himself, communicating the power. Patient and impersonations called out a! a! And the *vipinim* sang to basket and notched stick playing.³⁷ Kâksh'pakam would sprinkle meal on the basket.

Navichu had a dance, a pretty one. The *navichu* impersonator was in charge of the masks. And it was to Navichu that the bag of meal was taken by the patient's family as a request to hold the ceremony. This request would not be made until the sickness which was of a lingering kind, perhaps consumption, was seen by the medicine-man to be from the *vipinim*.

The *vipinim* are said to live below a certain pool or spring somewhere south of Sacaton at the foot of a mountain.³⁸ This spring at one time threatened to flood the world. Then two orphan children, a boy and a girl, were arrayed in best clothes and with feathers in their hair, and sent into the spring, whereupon the flow of water ceased. In time of drought, at night, the children might be heard crying. From which it was known that the year would be poor, and offerings of food and money and beads were made in the spring. If the year was to be good, with rain, the children were quiet.

Here we have the well-known Zuñi tale of the boy and girl sacrifice, and incorporated in the Pima cult are some character-

³⁷ Cf. Russell, 266. Lloyd, 208-9. Note the association between mask and turtle (ib. 206), a Pueblo feature.

³⁸ Over the spring is a stone. Should anyone start to lift it, a great wind would blow him away. The place is kept clean and fenced around. The people living here and looking after the place are referred to as *anakam*. There is said to be a government school near by. Inferably an actual shrine is being referred to. Russell places the home of the supernatural *navichu* on a mountain (p. 266), *kachina* like.

istic Pueblo rites not all of which were listed in our table of Pueblo and Pima parallels—besides passes with ritual sticks, and exorcism with eagle feathers, which were listed, notched-stick playing, domiciliary visiting, and, most ubiquitous of all Pueblo rites, sprinkling with corn meal, and offering meal with a request or prayer. I incline to think that the Pima mask cult is a borrowed Pueblo complex.³⁹

From my brief survey of Pueblo and Pima culture I remain with two outstanding general impressions which are by no means novel but are still, I venture the opinion, too little regarded. First, that similarities between two cultures must be studied in their integral settings to be weighted or appreciated truly; second, that ceremonialism in the Southwest, perhaps elsewhere, is in each culture a complex of rites distributed outside of the particular culture, but coordinated distinctively in it,⁴⁰ and that knowledge of the distribution of ritual, much more knowledge than we have as yet, is necessary for understanding the genius of any single Indian culture.

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³⁹ Perhaps by way of the Apache. Here we might note the decided resemblance, not at all to the Pueblo, but to the Apache, of Pima adolescence theory and ritual. At first menstruation a girl was sent to stay for four days with some admirable woman that the girl might take after her in later life. (Compare Russell, 182). The girl had to be exorcised with his eagle wing feathers by the doctor (*maka*), lest she be struck by "Thunder"—"the danger (*staob'tama*) had to be cleared away." As in the case of newborn child and mother, over the menstruating girl the doctor shook his eagle wing feathers, violently from side to side, at the same time blowing or spitting. He gave her medicine-water and blew smoke on her. There was also a dance by a line of men dancers, including the doctor, and a line of women dancers, the girl standing in the middle of the line. About fifteen years ago the government agent forbade this dance which the people think of as their outstanding tribal festivity.

Let me note here that the sense of danger from "Thunder" is much more marked among Pima than among Pueblos. Dr. Goddard tells me it is very marked among the Apache.

⁴⁰ Much the same is true, of course, of other cultural systems or traits. Take folk-tales, and a comparison of Pueblo and Pima tales. There are many common incidents—creation from epidermis (Zuñi), placing the sun, moon and stars (Hopi, Keresan); Coyote as cosmic mischief maker (Hopi), emergence by clan (Hopi, Zuñi); search for the Middle (Zuñi, Keresan); flood and mark of flood on a bird's tail; and sacrifice of boy and girl to still the flood (Hopi, Zuñi, Keresan); twins with powers; magical impregnation—but, with two or three exceptions, tales as a whole are quite distinctive and not comparable in the two cultures.



Metal work of reclining bull in relief. Part of a frieze from the temple of Tell-el-Obied Ur Chaldean of Sumerian work, date 3500 B.C. The head is cast copper about $\frac{1}{4}$ inch thick, body plates of bull, sheet copper about $\frac{1}{32}$ inch thick. This interesting specimen of prehistoric metallurgy was excavated in 1923 and is now to be seen in the Museum of the University of Pennsylvania.

THE EARLIEST ORNAMENTAL METAL WORK

By GEORGE BRINTON PHILLIPS

THE DISCOVERY of a metal frieze of bulls in the ruins recently excavated at Tell-el-Obeid, Chaldea, by the expedition of the University of Pennsylvania is not only an interesting archaeological discovery, but one of peculiar metallurgical significance. This metal work from historical evidence dates back to about 4000 B.C. and shows that even at that remote period the artistic mind could devise ornamental metal work, showing cultivated taste as well as considerable skill and knowledge in the art of metallurgy.

These ancient metal workers of copper, the Sumerians of Babylonia, if they did not have native copper to work with but only *ores*, must have acquired the knowledge of these ores and the process of smelting them, in itself a great advance over the Stone Age.

The ruins in which this metal frieze was found were in

the temple of the goddess Ninkhursag erected by King A-an-ni-padda 1st dynasty of Ur or about 4300 B.C., third dynasty according to Babylonian tradition after the flood.¹

The frieze was a row of young bulls lying down with their heads turned towards the spectator. The remains of four of these metal figures were found, height 0.22 m., length 0.70 m. The bodies are made of plates of copper hammered over a carved wooden body in relief, thus giving form and detail. The head is of cast metal, hollow, still containing a core of bitumen, the metal being about 1/4 inch thick. It was secured to the wooden body by a peg in the head, and a thin plate of metal joining the head to the body was fitted around the neck, hammered down, and nailed. The ability to produce sheets of metal and cast figure-heads of copper was evidence of accumulated knowledge and showed considerable experience in the working of metals. In those early days there was no steam machinery for rolling plates, so the melted copper must

¹ Report of C. Leonard Woolley, Director of the University of Pennsylvania, of the expedition to Chaldea in 1923.

have been poured out on a flat stone and hammered thin with a heavy stone, unless the knowledge of iron and iron implements was contemporaneous with copper which would make the antiquity of iron much greater than that usually assigned it. The thickness of the copper plates was not probably over 1/16 inch or less, but owing to the extreme oxidation its thickness is uncertain.

The head of the bull was a more difficult undertaking. As several of these cast heads were required, first a model of the bull's head was needed, carved in wood or possibly modeled in clay. This pattern was placed nose downward and damp sand was packed around it, the pattern being removed when the mould was dry. A core now of bitumen and clay was made and carefully adjusted in the mould, leaving a space which was to be filled in with the melted metal. Judging from the appearance of the cast head, this probably was the process used, although the *cire perdue* method may have been a well known process in antiquity.

To the metallurgist the composition of the body plates and cast head is a subject of considerable interest. Did these ancient workers in metal in the fifth millennium B.C. know anything about the alloy "bronze," and its superiority for casting? To decide this question, what was the composition of the manufactured metal, the oldest so far discovered? Analyses of the body plates were made for the writer at the University of Pennsylvania by Dr. D. L. Wallace and of the metal of the "cast head" by the courtesy of Dr. George K. Burgess of the Bureau of Standards, Washington, D. C., with samples kindly given the writer by the late Dr. G. B. Gordon, Director of the University Museum.

METAL PLATES OF THE BODY ASSAYED

The sample was so completely corroded that no metal was evident, consisting of fragmentary scales of carbonate of copper and oxide of copper. This was reduced to metal by heating in a stream of hydrogen and the metal assayed gave:

Copper 84.00% : Tin, lead, and other metals examined for
Iron 1.50% but not detected.

There was considerable siliceous matter, etc., adhering to the

copper, which prevented a complete and satisfactory analysis; the indications, however, were that the metal was not an intentional alloy but simply copper.

The analysis of the cast heads of the bull was accurate and complete. The borings (showing only a slight corrosion of the metal) were assayed at the Laboratory of the Bureau of Standards, Washington, D. C., with results as follows:

Copper	95.00%	} Tin, nickel, zinc, manganese, antimony, bismuth, and aluminum tested for but not detected.
Lead	1.60%	
Iron	0.80%	
<hr/>		
	97.40%	

The metal proved to be simply copper with some little impurity not purposely added.

Another analysis made of metal from "Bulls of Tell-el-Obeid," reported by Dr. Besch of the Sumer Committee, 1924, gave as follows:

Copper	95.62%	} Zinc and tin traces. Lead and arsenic and antimony completely absent.
Iron	0.75%	
Nickel	0.09%	
Sulphur	0.07%	
Silica	0.96%	
<hr/>		
	97.49%	

This analysis, giving the amount of copper as 95.62%, nearly agrees with the analysis of the metal of the cast head 95.00% made by the Bureau of Standards, Washington. These analyses confirm the belief that the metal of the bulls, both cast head and plates was the same, not bronze or any special alloy of copper, but simply copper with a little impurity. It also suggests that these ancient metallurgists were not familiar with the "closed mould" and the advantages of using a copper alloy in casting.

That the metal industry seems to have been practised at a very remote period is shown by a statement in the Old Testament, Genesis 5, verse 22, which states

Tubal Cain was an instructor of every artificer in Brass and Iron.

This suggests the question, What was brass in those days? Modern

brass is an alloy essentially of copper and zinc, often with lead and other metals. "Zinc," the distinctive ingredient of brass, was unknown as such until discovered and identified by Paracelsus in 1520 A. D., and it is not possible that a "brass" could have been intentionally manufactured with copper and metallic zinc *before* that date. If it was made, it could only have been by smelting together copper ores and those containing zinc, a metal then unknown.

The word "chalkos" translated from the Greek means not only brass, but copper and also the alloy bronze, so there is little chance to identify "brass" with the alloy of copper and zinc as we know it now.

An inquiry was made at the British Museum, London, about specimens of "Prehistoric Brass." The writer was informed by Mr. Sidney Smith that there were *no* specimens of prehistoric brass in that museum or in *any other* museum and that the "translation of the Hebrew word by "brass" was an anachronism. Had brass objects spoken of in the Old Testament existed in the time of the building of the Temple at Chaldea with its copper frieze, some such brass objects would surely have been discovered in the numerous explorations in the Holy Land.

Specimens of brass, the work of the time of Tubal Cain "artificer in Brass" who was contemporary with Noah, would date the production of this metal three dynasties before the reign of A-un-ni-padda, and date back the antiquity of brass to *before* the flood. The word translated "brass" can only refer to copper, which occurring native in some countries was easily melted and cast and the statement cited about Tubal Cain must be considered an inaccurate tradition or translation as at that time the ancient metallurgist had no means of discovering the composition of the metal they used, as chemical analysis was unknown.

Sir Flinders Petrie, in reply to an inquiry about prehistoric brass in Egypt, informed the writer that "there may have been a 'true brass' used in the third century A.D.," that Roman coins contained zinc in consular times, the alloy being copper 62.72%, zinc 4.0%, lead 16.25%. Under the early Emperors the alloy for coins was copper 75.8%, zinc 6.20%, tin 3.05%; in the 3rd

century A.D., it was copper 71.77%, zinc 1.5%, tin 5.20%, lead 1.13%; in the 6th century A.D., copper 97.0%, zinc 2.3%, tin 1.0%.

These different alloys must have been obtained from smelting together copper ores with those of zinc or tin, giving a variable alloy. As the metal zinc had not been discovered until some 12 or 15 centuries later, it is quite impossible that these ancient metallurgists were acquainted with the *different metals* forming the alloy, but only knew that the metal obtained was suitable for coinage. It required the experience of the analytical chemist of the present day, with his knowledge of the metallic elements, their tests, and instruments of precision, to determine the composition of an alloy of these prehistoric specimens. Thus far, it would seem that the most ancient objects of copper yet found are either *native* copper or copper reduced from very pure ores and not a *bronze* as sometimes is reported, and that the knowledge of the use of the metal copper dates from 4000 B.C., possibly a little beyond, and establishes an antiquity for the use of metals of interest to the archaeologist and the metallurgist and indicates the advanced civilization of the Sumerians.

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PHILADELPHIA, PENNSYLVANIA

THAT QUESTION OF RACIAL INFERIORITY

By G. H. ESTABROOKS

NEEDLESS to say, the problem of racial inferiority is one on which every person has the greatest difficulty in arriving at an unbiased conclusion. Any member of any group will violently resent insinuations that he comes from inferior stock whereas it is extremely difficult for the "Nordic," who at present is more or less top dog, to think calmly when other races hint that his superiority is due only to the accidents of environment and does not depend on some kind of divine dispensation.

We might point out here that the anthropologist, who really should be in a position to pass a historical judgment, if nothing more, is extremely moderate in his claims. In preparing his thesis the writer canvassed a number of the outstanding anthropologists of this country and England as to their attitude on racial differences in intelligence. There was an almost striking unanimity of opinion. A few stated definitely that no such differences existed. Most of them admitted that it seemed reasonable to expect certain differences to be correlated with the obvious divergence in physical characteristics. But all were agreed on one point, namely that these differences had not as yet been proved and that existing works which professedly bore on racial intelligence had certainly not established the inferiority or superiority of any of the groups in question.

Historically, the picture is not convincing. We see all the really great advances of the past made by people who belonged to very different racial strains and who certainly were not predominantly Nordic. The civilization of Egypt, and the Euphrates valley, the invention of the alphabet and of our numerical systems, working in metals, the beginning of agriculture, the art of weaving and of pottery all belong to various races and none can be proved as contributions for which we must thank the North European. Even more, when we come to America we find that the Maya and the Peruvian had made great strides towards civilization quite without any help from Europe or Asia—probably. The Maya

had invented a very complete calendar system and had struck on the idea of using zero all by himself in addition to general advances in culture while the Peruvian was doing work in weaving and in masonry never surpassed either before or since.

Moreover the assertion that the inspiration of Egyptian, Babylonian, Phoenician, Carthaginian, and Roman culture came from Nordic sources simply will not hold water. These so-called facts are speculations of the very wildest kind, and so far as I am aware are quite incapable of proof by modern anthropology. There certainly were incursions from the north into the Mediterranean basin at various times generally long after the real basis of Mediterranean culture was established. But these invaders seem just as often to have been Alpine as Nordic and their contribution generally consisted in overturning existing cultures which sometimes were able to recover—one might almost be tempted to say, after the Nordic had been sufficiently assimilated to allow culture again to progress.

From an historic point of view the case for the Nordic is not very impressive. Too often he appears as a typical child of the dragon's teeth—his duty was to tear down cities, not to build them. A careful examination of more recent work on the subject indicates that even here the case of superiority is far from being proved.

This recent evidence has been largely based on results of intelligence tests given to various "races" in this country. Two primary objections can be lodged against the results. In the first place, no effort whatsoever was made to treat the groups on a racial basis, and secondly the intelligence tests, all things considered and linguistic handicaps taken into account, almost certainly did not yield valid results even on those groups which were tested.

Let us consider the first point. If we are going to determine racial differences in intelligence, we must test the intelligence of "races." The anthropologist determines race on a physical basis. Color of hair or of eye, shape of head, stature, facial index and such characteristics form his basis of classification. "Italian" means nothing in a racial sense. There are light and dark Italians,

tall and short, long-headed and broad-headed, thick-nosed and thin-nosed. The Italian is a member of a nation if you will, but it proves nothing from a racial point of view to show him inferior to, let us say, the Jew, who is also from a very mixed stock, the Negro in the United States who is often more white than Negro, or the old stock American who, while probably mostly Nordic in descent, represents by no means a pure group.

To be sure, if we could prove the Negro definitely inferior we could come to the supposition that this inferiority was probably due to the presence of Negro blood and leave it at that. The same applies to the Indian and the Chinaman. Also if we could conclusively show that the Southern Italian, who is mostly dark was inferior to the blond Scandinavian, that also would be a point worth making. But in so far as I can see, this has not occurred to the majority of writers on racial psychology. They have assumed that Italian or Jew or Malay were racial terms per se and left it at that without even taking the trouble to point out that they were really testing—or trying to test—"national" intelligence and that racial differences could only follow as a secondary and very doubtful inference. I insist that this is a point of the first magnitude and am glad to note that certain writers, notably Hirsch, are turning their thoughts in this direction.

A true definition of race is important but a valid measurement of intelligence is quite as essential in such work. Here again we have erred seriously in times past and have only lately realized the extreme difficulty of getting a satisfactory measurement of intelligence in a group wholly different from ourselves, when, as it happens we are to make the yard-stick. The writer was struck by the fact that almost every anthropologist with whom he came in contact had but scant use for the intelligence test as applied to this task.

It is obviously unfair to test an Italian child by devices which presuppose a thorough knowledge of the English language. Pintner's experiment at Youngstown drew attention to this problem and since then we have had a growing realization of the seriousness of this language handicap. This has culminated in

the recent survey in the Philippine islands wherein the native children, we are told, were as much as three years behind American children in verbal tests, practically equal to them in non-verbal tests, and actually superior in certain forms of mathematical ability. These results are certainly striking and only emphasize the fact that the problem is not one which can be solved offhand.

Even when dealing with such a group as the Negroes in the United States we cannot be too triumphant in the claim that here at least there is no language handicap and so results must be accepted as they stand. We must bear in mind that the I.Q. is essentially a function of school experience. Gordon in his work on the Canal Boat Children proved that point. The I.Q.'s can only be compared when schools are giving equal opportunities and we doubt if the Southern Negro school would be placed on an equality with the Northern white school by any educator familiar with the facts. It is interesting to note that in the army tests the Northern Negro was superior to the Southern white in some cases. We do not hear that rather significant point emphasized by our Nordic enthusiasts.

We look forward with interest to the International Intelligence Test now being tried out under the supervision of Professor Brigham. This, we feel, is a step in the right direction, since it is entirely non-linguistic. We say advisedly, a step, not a solution of the problem. So far as we are aware, this test is not being used in conjunction with the taking of exact anthropometric measurements by trained observers and until this is done we shall have that fundamental objection, that the work is largely on a national basis and that at best the psychologist can only say that "probably" such and such a group belong "mostly" to the Mongolian or Negro or Alpine race.

The point at issue is not essentially one for the psychologist to decide. To be sure, he should be our last authority on the subject of tests for intelligence, but he is liable to overlook many vital points unless he considers the opinion of the anthropologist and biologist as well. For instance, is the physical inferiority of the French-Canadian, so well illustrated by Davenport, due to the fact that the stock is just poor or is it due to inbreeding?

If the latter, then the defects, mental and physical, can and probably will be rapidly remedied as soon as intermixture becomes more the rule—but it is a question whose final answer seems outside the realm of the psychologist.

Or again, why the decline of Greek civilization? Mixing with poor stock, perhaps. Just as good a guess would be malaria, or plague, the killing off of the educated in warfare—witness the Athenian disaster at Syracuse—or race suicide. After all, we cannot call the Indian or Eskimo *inferior* because he happens to have no resistance to smallpox or tuberculosis. The fact is, he has not had a chance to demonstrate. Cortez crushed the Aztec as much with smallpox as with steel. Had the Spaniards been met by a race capable of combating them and of absorbing their civilization, who can doubt that the Mexican would today have been in much the same position as Japan?

Indeed, it would seem that the historical solution of the problem was just as truly scientific as can be any attempt with our present-day intelligence tests. Again and again we have the case of a race or nation being the despised outcast or barbarian one generation and demonstrating that it is capable of high culture the next. The Aztec, the Jap, and even the North European himself have all passed through this stage. In psychology we say of the individual that past achievement is a guarantee of future attainment. Surely this must apply to some extent to nations and races, and for one race to assume superiority merely because at present it can lodge a fair argument to uphold that claim would seem a trifle unreasonable.

In conclusion might I state my conviction that as yet we have not even approached a scientific proof of superiority of one race over another in intellectual attainments. The problem is immensely complex and is one on which the anthropologist and biologist have really as authoritative an opinion as the psychologist. Tests must be used in conjunction with exact anthropometric measurements, language handicaps must be done away with, and even then we have the well-nigh hopeless problem of culture background. Will authorities agree that any test, non-linguistic or otherwise, can be prepared by the American and legitimately

used to gauge the intelligence of the Chinese? I think not. In an article of mine which has just appeared¹ I have tried to meet this final objection—unsuccessfully, I fear.

COLGATE UNIVERSITY,
HAMILTON, NEW YORK

¹ A Proposed Technique for Determining Racial Differences in Intelligence. *Amer. Naturalist*, Jan.-Feb., 1928.

A PREHISTORIC SKELETON FROM GRASSY ISLAND

BY EDMUND BURKE DELABARRE

IN THE AMERICAN ANTHROPOLOGIST, n.s., 27: 359, 1925, I described the discovery of relics of Indian occupation on a site whose location gives evidence that it was used as an encampment many centuries ago. The stratum on which the artifacts occur lies now underneath three feet or more of peat at Grassy island, in the Taunton river in Massachusetts, and is covered by high tides to a depth sometimes of seven or eight feet. As nearly as can be calculated, the things found at that now submerged level must have been left there at least a thousand years ago,—probably fifteen hundred years would be an even more reasonable estimate. Confirmation of the presence of Indians in New England at that remote period, and of subsequent subsidence below sea-level of the ground on which they lived, has been submitted recently by C. C. Willoughby, in an article describing "An Ancient Fish-Weir" (AMERICAN ANTHROPOLOGIST, n.s., 29: 105, 1927).

On May 21, 1927, I uncovered at Grassy island the fragmentary remains of one of the natives who lived there at the time when the implement-bearing surface was a habitable site. The deposit presents several features of particular interest, some of which are of a distinctly puzzling character. At first sight, I attached little importance to it, not suspecting its human character. Consequently, while I made reliable observations of its appearance, dimensions, and situation, I did not take care to collect and preserve every fragment. Later, on learning that the bones were human, I recovered as many additional fragments as possible from the beach, where they had been washed about by intervening tides. Some few bones of an entirely different and recent non-human source may possibly have been lying unnoticed on the beach nearby, although I had seen none and had made a very thorough examination of the beach before excavation began. What may be relied upon therefore in this account is first the accuracy of description of the character of the deposit and its

surroundings; second, the fact that most of the bones collected, including all that are human, came from that deposit; and third, that practically all the contents of the deposit were eventually assembled except such as were too small to pick up. It is not impossible, though hardly likely, that at most one or two small bones from some other source may have been included among those collected. For estimates as to the significance of these remains I have had to rely upon persons having better knowledge of such matters than I myself possess, and I have obtained from them opinions which are not wholly in agreement with one another.

The line of demarcation between the overlying peat-growth and the ancient habitable surface is clearly marked. The bones were found ten inches underneath this ancient surface. They were lying all together in a small mass, somewhat disk-shaped, one to two inches in vertical thickness and ten to twelve inches in diameter. They were broken into small fragments, varying in size from the merest speck up to not more than two inches in longest dimension. There were hundreds of these fragments crowded compactly and confusedly together, with the interstices between them filled with soil exactly like that of the ground around them. There was no evidence of ashes, charcoal, or any substance other than bone and soil; and no sign of a container, although there may have been one originally, of a perishable character. It was a sharply defined and isolated deposit. I have dug in all directions beyond it, excavating a half-oval area of about 75 square feet to a distance of six to twelve feet from the location of the bones, and have found nothing further that contributes to a solution of the nature of the deposit. There were only a few arrowheads, finished and unfinished, at various depths, and a possible stone hoe. Some of the most interesting of my previous finds, however, had been only a short distance away,—the shallow mortar, gouge stuck upright in the soil, graphite and red ochre, and the hearth-like arrangement of stones, were within twenty feet of one another, and ten to twenty-five feet from the bones.

Many of the bones show a checking, such as may have been due perhaps to long exposure to weathering, or perhaps to the

action of fire. Otherwise, they appear to be unaltered. They are in such small fragments that it is difficult to identify many of them. There is no question however that most of them are human. There appear to be among them recognizable fragments from arm, leg, and foot, and there are certainly many fragments from the human skull. Of the latter, Professor H. H. Wilder writes:

The edges show sutures, which are those of an adult and are not senile. There are not enough of them, nor in large enough pieces, to permit reconstruction of the skull and determination of its characteristics. This has been attempted, but fruitlessly, at the American Museum of Natural History. Furthermore, of other parts also there is certainly very much less than a complete skeleton represented. Says Wilder:

The spectacular point is the complete absence of teeth, the hardest part of a skeleton. Even after cremation they could not have become lost when the other bones were kept.

Many other portions of the skeleton must be absent also, as is evidenced by the small size of the collection, whose clear-cut margins and solid, compact character make it seem that what was found was all there was to the original deposit. This constitutes one of the puzzles of the situation. So also does the fact that not all of the bones are human. Wilder writes:

It is also certain that there are bones of other animals, probably mammals and birds. Among them I have noted the base of a scapula from an animal the size of a cat, perhaps a woodchuck or rabbit.

Barnum Brown reads the evidence of the skull-bones as indicating a younger person than Wilder supposes, and disagrees with the latter's identification of animal bones. But he too finds one bone, a vertebra, that is not human.

It is clear that these remains cannot have been the result of a burial made on the spot within historic times. Grassy island is known to have been at practically its present level in the earliest Colonial days. No one would have dug for such a purpose through four feet of peat and soil on an island submerged at every high tide. The remains must date from the time when the ancient surface now underneath the island was above water and habitable. Aside from this, nothing seems sure about the

origin of the deposit. Barnum Brown assures me that the checked appearance of the bones is a result of long weathering on the surface of the ground. On the other hand, Mr. Willoughby tells me about the human bones:

They are undoubtedly what remains of a cremated human body. We find very rarely in New England what may have been the remains of a burnt prisoner of war or something of that nature. I know of only two or three such instances.

No hypothesis appears to account easily for all of the features connected with the case. Why should there be only parts of a human skeleton, mingled probably with a few animal bones, lying in a small compact mass? The only suggestions that have occurred to me, and to others whom I have consulted, are the following:

1. Portion of a kitchen midden. This seems practically impossible, for a good many features are absent that would have been surely present in such a case: more numerous and varied food-remnants of bone and shell spread over a wider and thicker area, shards of broken pottery, artifacts.

2. Remains of a prisoner burnt at the stake. It would have to be assumed that the bones were left where they fell in a compact heap, that animals were thrown into the same fire, and that some bones crumbled and disappeared. This supposition, unless merged with the next one, is hard to reconcile with the sharp delimitation of the mass, and with the absence of so much of the skeleton.

3. The burial of a cremated body in some perishable container, perhaps with the inclusion of small animals to serve as food for the departed spirit. This theory is plausible, but does not account fully for the missing parts of the skeleton. It is true however that in some known cases of cremation no great care seems to have been taken to gather up every fragment of the remains.

4. The stomach-contents of a carnivore, such as a wolf. This supposition demands the assumption that a wolf, possibly some time after a meal of small animals, came upon a human body, probably with crushed skull; gnawed portions of the body, from both extremities; was himself killed shortly afterwards and disemboweled, the body being disposed of otherwise but the stomach

thrown into the fire. Or, alternatively, the human body might have been partially burnt beforehand, through accident or design, and the wolf's stomach simply thrown away to decay where it fell. This series of events is not wholly impossible. The disagreements of opinion of which I have spoken make two simplifications of this hypothesis possible: first, the feature of fire may be dispensed with, if the condition of the bones was due to weathering instead of cremation; and second, the small animals need not be assumed if the vertebra is the only non-human bone present, because a single bone like that might have crept inadvertently into the collection in the manner already suggested.

5. Contents of a medicine-bag. All sorts of curious things went into such bags, and this suggestion by Mr. Willoughby deserves consideration.

None of these possibilities seems wholly convincing, and the exact nature of the original incident remains a mystery. Nevertheless, we may be sure that, however he may have perished and however the compact assemblage of an incomplete and finely fragmented collection of his bones may have come about, these bones are certainly those of an Indian who lived in Massachusetts not less than ten to fifteen hundred years ago.

BROWN UNIVERSITY,
PROVIDENCE, RHODE ISLAND

EDWARD SANDFORD BURGESS

IN Professor Edward Sandford Burgess, whose death occurred on February 23, 1928, we mourn one of the founders of the American Anthropological Association. A son of Reverend Chalon S. Burgess and a grandson of Dr. Jacob Burgess, who moved from Berkshire county, Massachusetts, to Silver Creek, New York, in 1811, he was born on January 19, 1855, in Little Valley, Cattaraugus county, New York. He was graduated from the State Normal School of Fredonia and in 1879, with distinction, from Hamilton College; and for two years he held a graduate fellowship in Greek at Johns Hopkins under Dr. Gildersleeve. However, his taste for natural science came to predominate over classical leanings, and he chose the teaching of science for his life work, with botany and anthropology as his major interests. For thirteen years he was Professor of Botany in the Central High School of Washington, D. C., and, during the same period, at Martha's Vineyard Summer Institute. In 1885 he taught at Johns Hopkins, and in 1895 was called to the professorship in Biological Sciences at Hunter (originally Normal) College, New York City, where he became a teacher of science teachers.

It is not generally known that Dr. Burgess was one of the first, if not the first, to introduce regular instruction in anthropology in a college for women. He organized a collection for teaching purposes, stimulated visits to the museum exhibits available in the city, and encouraged his assistants to take up graduate work in anthropology. In 1925, before his retirement, six courses were offered by the Biology department, those on Primitive Man, Language and Race, and Prehistoric Man being prescribed for all majors. The first of these, prerequisite to the rest, dealt with general principles, the illustrations being mainly drawn from American Indian life. A fourth course on Primitive Civilization varied in subject-matter: it was devoted either to the higher civilization of the Near Orient or to Neolithic man and early social and religious institutions. The two remaining courses treated, respectively, Primitive Mediterranean Civilization, with the

emphasis on Crete; and the Ethnology and Culture of China and Japan. Endowed with an unusually sympathetic outlook on human problems, Dr. Burgess considered it a vital task to instill into the rising generation liberal views as to the racial strains that meet in New York City.

Primarily interested in botany, Professor Burgess' major publications were in that field—the *History of Pre-Clusian Botany* being published in 1902 and *Species and Variations of Biotian Asters* in 1906. However, with advancing years his attachment to our science deepened. Besides studying the Romantsch people of southeastern Switzerland, gathering fragments of American Indian lore, and accumulating specimens of primitive craftsmanship, he wrote a comprehensive work on Palaeolithic man, which, it is hoped, will be published. It discusses the geological and palaeontological background of man's evolution, early fossil types, and the cultural stages down to the Campignian and the Danish kitchen-middens. Cognizance is taken of W. K. Gregory's and Elliot Smith's studies on the biological side, while culturally there is consideration of the Eolithic, with attention to the rostro-carinates.¹

Professor Burgess' personality represented a felicitous blend of scholarly devotion and character. He was a modest student of the universe, with a loving absorption in all its manifestations that might well arouse the emulation of the younger generation. No one privileged to see his travel notebooks could doubt that he had the gifts of a first-rate recorder of ethnographic fact. With his omnivorous tastes, and his powers of observation he recalled the great British naturalists of an earlier period. He suggested them also by the noble simplicity of his character, the wholly disinterested devotion to his ideals. Those who knew him will remember him.

ROBERT H. LOWIE

¹ For the description of this work, as well as for other details, the writer is indebted to Mrs. Edward Sandford Burgess and Miss Julia Burgess.

BOOK REVIEWS

ASIA

Bei den Urwaldzwerge von Malaya. PAUL SCHEBESTA. (Leipzig: F. A. Brockhaus, 1927. 278 pp., 150 ills., mostly photographs, 1 map.)

Father Schmidt's enthusiasm for the investigation of Pygmy peoples induced Pope Pius XI to finance an expedition to the Malay peninsula for ethnographic research among the Semang, Sakai, and Jakudn. The task of conducting the researches was entrusted to Father Schebesta, one of Professor Schmidt's disciples, and the present volume embodies a travel report and popular ethnographic account, limited however to the Negrito visited, the description of the other tribes being reserved for the future.

Like the Andamanese, the Semang represent not a single linguistic or cultural, let alone a political, unit but a number of distinct, though related, groups, the northernmost living in Siam in isolation from the rest. The total number is set at 2,000, of whom the Djahai, who occupy part of northeastern Perak and western Kelantan, constitute about forty percent (p. 13). In various localities there has been intermarriage with the Sakai (p. 39), and throughout the peninsula characteristic relations obtain between the Negrito and the Malays. Each Semang group has as quasi-guardian some one Malay, to whom they bring the produce of their forests in exchange for rice, iron knives, or cloth. As a lower caste, they are not permitted to enter a Malay hut, and they suffer considerable exploitation (pp. 29, 38). Though nowadays no Malay would dream of marrying a Negrito, miscegenation has undoubtedly occurred even in fairly recent times (p. 37).

Contact with the Malays naturally affected the Negrito mode of life. It is surprising, however, that the bow is universally obsolescent, having been superseded by the blow-gun (pp. 48, 73, 189). Some groups have become passionate betel-chewers (p. 232), and sporadically disease is treated by the exorcism of the possessing spirits, the formulae used being in Malay (pp. 134, 187). The as yet quite rudimentary attempts at cultivation of the soil are of course traceable to the Malays (p. 269f.), and the same applies to masculine dancing, all old Semang dances being executed only by

women, while the men provide the music (pp. 32, 68). It occurs to the reviewer that the occasional mention of seven as a ceremonial number suggests influence from the same source. For example, the Menri Semang avoid approaching the site of a grave for seven days; while the Kenta observe restrictions for seven days after the decease and have funeral feasts on the seventh, fourteenth, and twenty-first days (pp. 265, 227).

The Semang are mainly vegetarians, the women largely but not wholly devoting themselves to the required gathering of food (p. 269). A simple wind-screen forms the regular dwelling (p. 52); and all utensils, such as water-containers and cooking-vessels, are of bamboo (pp. 22, 270). The preparation of poisonous roots is a noteworthy feature (p. 111). Father Schebesta is thus led to speak of his Pygmies as living in a Bamboo Age, left untouched by the Stone Age (p. 151). While, of course, the fact that stone implements are lacking—notwithstanding the availability of the raw material—is significant, it seems more plausible to assume that the ancestral Semang merely discarded what stone tools they once possessed in favor of bamboo.

Though the author sometimes speaks of "*Sippen*," he tells us explicitly that the social unit is the family and that "*jede straffe Stammesorganisation*" is lacking (p. 270). This is in harmony with the kinship nomenclature (p. 108f.). Thus *ai* is father; *ai-toi*, parent's elder brother; *ai-ba*, parent's younger brother, *bö*, mother, *bö-toi*, parent's elder sister; *mo*, parent's younger sister. Personal names are never used in address, either kinship or status terms being substituted. The type of distinction recognized may be illustrated by the words "*mawogn*" and "*bakes*," of which the former designates persons having three children, and the latter those having more than three. Though the data are not given in full, they demonstrate a non-bifurcating system with Hawaiian leanings modified by a tendency to discriminate between the collateral relatives and those of the direct line of descent. When the complete terminology is known, it will be profitable to compare the details with the Andamanese system.

Marriage between cousins is forbidden; also, specifically, between a man and his "*mo*." The smallness of each territorial group thus promotes practical local exogamy (pp. 92f., 109, 173, 225). Polygyny is not prohibited, but rare; on the other hand, divorce is common, though not after the birth of children (pp. 93f., 271). Marriage with the deceased wife's sister is attested in at least one case (pp. 59, 67). A form of matrilocal residence occurs, inasmuch as

a Semang bridegroom will remain near the father-in-law for two years in order to work for him, after which period he goes to join his own father for good (p. 92). The husband presents his prospective father-in-law with gifts, which are returned if the wife seeks a divorce but not in the reverse case (pp. 93, 225). Rules of avoidance are strictly maintained; a father must not sleep near his adult daughter, nor a mother near her adult son (p. 183), who may or may not sleep with other youths in a sort of bachelors' hut (p. 54). By far the most striking kinship taboo, however, is that between child-in-law and parent-in-law of the opposite sex (pp. 63, 184, 215, 224). They are not allowed to speak or even approach each other; a son-in-law would rather allow his wife's mother to drown than touch her. The observance is derived from the supreme deity, and any breach would precipitate a fatal illness.

Property rights are most conspicuous as regards the durian and the ipoh (poison) trees. Wherever a group owns trees, there is its home, and no one would encroach on these rights so long as the fruit is on the tree. The Semang is generous towards his own and related families, but unrelated ones are treated at best in niggardly fashion (p. 78f.).

The supreme being, Karei, or Kaei, is associated with the thunder, and any transgression of his laws at once provokes a peal of thunder. A list of his commandments includes a prohibition of adultery, of mocking certain species of animals, of killing others sacred to Kaei, of cohabiting in the daytime, of playing with birds' eggs, etc. (214f.). In many cases the god's anger is assuaged by an expiatory blood-sacrifice, the natives gashing their shinbones and casting the blood towards the sky, a rite repeatedly witnessed by Father Schebesta (pp. 83, 150, 177, 191, 262). The other prominent ceremony is the Pano, which is performed mainly as a curative rite. The shaman and his apprentice resort to a special conical hut and hold communion with the Cenoi, fairies who normally dwell in flowers. The Cenoi, in fact, enter the sacred hut and speak through the shamans in an esoteric tongue (pp. 215-219). It is only through the shaman that the Semang can come into relations with the supernatural world. The shaman is a son of Kaei, and after death turns into a tiger. He derives his power largely from a quartz crystal that, mirror-fashion, reveals the nature of the disease threatening a patient. Lesser doctors are mere diagnosticians, the greater ones also prescribe suitable remedies (pp. 181, 185, 219f., 265). Initiation rites are lacking (p. 226).

The relations of Karei (Kaei) to other supernatural beings vary somewhat among different groups. Sometimes his son Ta Pedn, though of inferior power, figures as the benevolent creator and intercessor between man and Karei (p. 178f.). Myths are not dealt with *in extenso*; the world-conflagration motive (p. 84) and the pursuit of the (male) moon by the (female) sun (p. 101) may be mentioned. The Kenta Semang believe in a primeval flood, from whose depths the dung-beetle brings a small lump of earth, which rapidly grows in height (p. 212). From the same group is reported an unusually systematic and complex cosmology (pp. 208 sq.).

Disposal of the dead is by interment, a wind-break being erected above the grave (p. 135 sp.). The spirits are conjured to remain away and not cause illness in the camp, but fear of the dead leads to the abandonment of the settlement (p. 140). Schebesta does not confirm Stevens' report of a soul-bird except as a Malay concept (p. 95). The Semang have, of course, a belief in a dream-soul, which separates from the body during sleep and may suffer harm in the course of its travels (p. 140).

The Semang do not tattoo, and rarely paint their bodies. On the other hand, bamboo utensils, viz., the blow-gun, quiver, and comb, are beautifully decorated. The author, however, found the ornamentation lacking in the extreme north and south and considers it of alien origin. For the most part, the designs are of merely decorative nature, but the Kensiu-Kenta division attaches magical significance to some of the patterns (p. 250f.).

Enough has been said to prove the value of Father Schebesta's book, which also succeeds in conveying the atmosphere of travel in the Malay peninsula. Ethnographers will look forward with great anticipation both to the fuller monograph on the Semang, and the description to be devoted to their neighbors.

ROBERT H. LOWIE

Ceylon Journal of Science. Section G.—Archaeology, Ethnology, Etc. Edited by A. M. HOCART, Archaeological Commissioner, Ceylon. Volume 1, part 2. October 1st, 1925. (London: Dulau & Co., Ltd., 34, Margaret St., Cavendish Sq., W. 1. Ceylon: The Archaeological Commissioner. Price Rs. 3-50.)

The second number of this new anthropological journal has made its appearance. The excellence of its typography and the fine series of half tone plates and drawings make it a most pleasing number.

The intrinsic interest of the subject matter appearing in this journal should insure for it a wide range of subscribers.

In the present number there are three articles by the archaeological commissioner of Ceylon, Captain A. M. Hocart. The first article is an "Archaeological Summary" of exploration in Ceylon. This is illustrated by thirty fine plates and maps, and covers a wide range of archaeological features from chipped chert implements to cave temples.

The second article is one of great general interest to students of human culture, for it deals with India and the Pacific. The author, with characteristic acumen, traces to a pre-Vedic source the social organization of eastern Fiji. His knowledge of both ancient Indian literature and modern Oceanic culture gives him an unusual vantage ground from which to discern the connections between the geographically remote regions of Fiji and India.

"Money" is the title of the third article. Therein the author identifies the parent form of all money with the fee paid to the priest who conducts a sacrifice.

Not only is the Ceylon Journal of Science purchasable from Dulau and Company, but it may also be obtained by exchange. All communications should be addressed to the Archaeological Commissioner, Ceylon.

E. W. GIFFORD

The Yukaghir and the Yukaghirized Tungus (The Jesup North Pacific Expedition, 9: 343-469) WALDEMAR JOCHELSON (Leiden: E. J. Brill, Ltd., 1926. 15 guilders)

The present installment of Dr. Jochelson's monograph is devoted to the material culture of the Yukaghir. Like its author's previous publications it is full of ethnographically significant matter, from which it is hard to make adequate selections.

In the description of Dwellings, the similarity of the conical skin-covered tents to those of northern Canada is striking (pls. 19, 20). This is not the only type, however, there being also, on the tundra, cylindrical tents merely topped with a cone (p. 346, pl. 20). Remnants of wholly or partly underground houses were reported in the eighteenth century, but these earth-lodges disappeared long ago (p. 346 f.).

Dogs are not used for driving except by a small portion of the Yukaghir. Except for infants and invalids, only freight is trans-

ported on dog-sledges, women and girls being sometimes harnessed in order to aid the animals (pp. 349-351). While the Yassachnaya and Korkodon Yukaghir have only dogs, the Tundra people have small reindeer herds, averaging from eight to fifteen head. The Tungusized Yukaghir, however, have as many as 800 and more. The Yukaghir harness their reindeer to sledges of the Chukchi-Koryak type, which are straddled by the driver. They also ride their beasts in the summer time, laying the saddle above the reindeer's forelegs, since otherwise a heavy rider might break its back. Jochelson distinguishes the short Chukchi-Koryak mountain reindeer breed as unfit for a mount, being innately quite different from the Tungus-Lamut tundra variety. From this he infers the separateness of their origin (p. 368). The best breed of the East Siberian area is that of the Yakut, who, although they only recently got reindeer from the Tungus, "applied to their reindeer herds the methods of conscious selection with which they were familiar as horse and cattle breeders" (p. 363).

Dr. Jochelson quotes an interesting survey of reindeer-breeding by a Russian veterinary, Dr. Kertzelly, who in addition to the universally recognized nomadic category defines a second type, that of the house or farm reindeer: scores of reindeer or lesser numbers are kept near the dwellings (p. 361) in an enclosure and fed on hay and lichens gathered during the summer. Jochelson infers that

the concept of the reindeer as inherently a migratory animal that could never thrive in an enclosure may be radically changed after observation of the "settled" reindeer household (p. 367).

This form of reindeer-breeding occurs among the Yakut, the Ostyak, and Russian peasants of Arkhangelsk, and Vologda.

As to the origin of reindeer domestication, Jochelson holds with Bogoras that it is very ancient and occurred independently in several centers. He thus rejects Laufer's and Hatt's views and, as regards the first point, finds himself in agreement with Schmidt and Koppers. While the reviewer does not consider himself able to arrive at a positive judgment on this moot-point, he would like to point out that "independent origin" admits of two meanings. If Lapp reindeer-breeding has nothing to do with that of the Samoyed, this does not prove that the *idea* of domestication was created by them independently of Scandinavian example. Or would Dr. Jochelson hold that the yak, the buffalo, and our cattle were all domesticated by three peoples in complete ignorance of one another's methods? Similarly,

the Chuckchi may not have acquired individual reindeer from the Tungus, but surely the notion of rearing these animals came to them from the outside. Domestication is far too artificial and difficult a phenomenon to permit an indefinite number of successful separate inventions of the process.

Unfortunately in the midst of his valuable discussion of reindeer-breeding Dr. Jochelson makes the erroneous statement that the domestic horse was known in the oldest Neolithic period of Europe (p. 363). There seems to be no basis for the occurrence of the domesticated horse until very much later.

It should be noted that the Yukaghir are essentially fishermen, since their reindeer are too few to supply the staff of life (p. 370).

The Yukaghir have generally adopted Tungus costume, which the author notes as irrational borrowing inasmuch as the Tungus dress is ill-adapted to the rigorous climate of the far north—less so than the older Yukaghir style which followed the Chukchi pattern (p. 388). In the treatment of snow-goggles Dr. Jochelson's antidiffusionist bias reappears.

Painful snow-blindness is the result of not using snow-goggles. They must, therefore, be an independent invention of the circumpolar peoples (p. 398).

But in northern Canada we find that only those Athabaskans in contact with the Eskimo have taken up with the idea of snow-goggles. (A. G. Morice, *The Canadian Dénés*. Ann. Arch. Rep. 1905, Toronto, 1906, 198.)

The Yukaghir learnt to work iron from Yakut blacksmiths in the seventeenth century. However, even before that time there were few stone implements, bone being more prominent. Thus, lances and knives were of elk ribs, arrowheads of mammoth tusks (p. 423).

The last chapter, on Art and Pictographic Writing, is full of suggestive matter. The Yukaghir share the Eskimo propensity for mapping.

In their drawings they display a clear conception of the relative location of the rivers, lakes, and mountains of the territory they know and also a knowledge of the four cardinal points (p. 444).

The love letters scratched on birchbark by young girls by a series of conventional symbols are likewise of the greatest psychological interest (pp. 444-450).

American anthropologists must be profoundly grateful for having Dr. Jochelson's researches once more made accessible to them in their

own tongue. In the near future we hope to report on his study of Yukaghir religion.

ROBERT H. LOWIE

The Reindeer-breeding of the Karagas. B. E. PETRI. (Irkutsk, 1927. In Russian. 46 pp.)

Although the title of this pamphlet mentions only the Karagas, it includes also a description of the reindeer-breeding of the Uriankhai people or Soyot. The pamphlet exhibits a double interest. First, it positively decides the question of the identity of the Uriankhaitzy and the Soyot. The late Dr. Weule (*Leitfaden der Völkerkunde*, 5) regards the Soyot and Uriankhai as different tribes. The late Miss Czaplicka expressed her doubts whether the Uriankhaitzy and the Soyot are one and the same tribe. She says (*The Turks of Central Asia in History and at the Present Day*, 59):

The Uriankhai are sometimes called Soyot, but it is not certain whether this name ought to be applied to all of them.

Second, Petri gives data on the mode of reindeer-breeding among the Karagas and Soyot. The use of the reindeer as a mount and pack-animal by these two tribes differs from other reindeer-riders of Eurasia. Professor Petri wrote to me before starting to the Sayan mountains, and I suggested to him to give his attention to the two questions mentioned. The pamphlet answers them.

The reindeer of the Soyot and Karagas belong to a strong, tall, and highly domesticated race. As mountainous tribes they use the reindeer as a riding-animal only. All other reindeer-riders of Eurasia sit over the front legs of the animal near the neck, on a saddle without stirrups, the rider is balancing in his seat and keeps in one hand a long staff to lean upon. The northern reindeer is too weak to hold on his back a grown-up rider. The Karagas and Soyot sit on the middle of the reindeer's back as on horses. It must be mentioned here that the Soyot who live in Mongolia rear cattle and horses instead of reindeer.

Castren regarded the Karagas and Soyot as Turkicized Samoyedic tribes. They call themselves Tuba. In the Chinese annals the name Tuba is applied to peoples who lived in the southern Yenisei region and it is probable that Samoyedic tribes were meant. The Turkic peoples were called Tu-kiu. Patkanoff believes the name Tuba to be testimony in favor of their Samoyedic origin. The reindeer-breeding of the Karagas and Soyot gives further evidence of their Samoyedic origin.

A few words more on the Karagas. At present they form a poor, declining small tribe, numbering 416. They depend in their household upon the Soyot, from whom they acquire reindeer, upon the Buryat who sell them horses, and on Russian merchants and Soviet officials. What they need is a disinterested support of their economic life.

WALDEMAR JOCHELSON

PHYSICAL ANTHROPOLOGY

The Racial Characters of the Swedish Nation. Anthropologia Suecica MCMXXXVI. Edited by H. Lundborg and F. J. Linders. (Published by the Swedish State Institute for Race Biology, Uppsala, 1926. Pp. I-XIV, 1-182, 1*-108*, pls. 1-44, whole page maps 1-4.)

This is a monumental work, prepared through the collaboration of the staff of the Swedish State Institute for Race Biology and edited by Doctors Lundborg and Linders. The collection of the material was made chiefly during the years 1922-24. The subjects of the investigation were 47,387 soldiers between the ages of twenty and twenty-two years, thus representing a selection with regard to certain characters, notably stature. In the plates of types, older men, women, and children are also represented. The anthropometric material is presented, with due regard to locality and social status, through the medium of twenty-six tables. No series of individual measurements is given, except of individuals portrayed in the plates.

The whole-page maps are in colors and show, for northwestern Europe, (1) mean stature, (2) eye color, (3) head form, and (4) the Nordic racial kernel areas. The pronounced Nordic racial kernel areas lie in the broadest part of the Scandinavian peninsula and in Iceland. In the kernel areas more than eighty percent of the population have cephalic index below 80, more than ninety-five percent have blue, gray, and mixed eyes, and men have a mean stature of 172 to 174 centimeters. The agricultural population shows on the whole a more Nordic character than the urban and industrial populations (p. 179).

A summary occupies pages 172 to 182 and presents in very convenient form the outstanding features of the sections by the various authors. Certain of the conclusions are of sufficient general interest to cite in even so brief a notice as this.

Docent G. Ekholm, of Uppsala, writes that

the Nordic race must be considered as having developed from the Aurignac race, which is thought to have migrated from Asia (p. 173).

Two fair-haired, blue-eyed races are recognized: (1) the tall Nordic race with a long, narrow face and long, narrow head; (2) the medium-sized, thick-set, East Baltic race with a broad face and broad head. The Swedish nation today contains a higher percentage of the Nordic race than any other people in the world. The number of dolichocephals in Sweden is greater than in any other Nordic country (p. 182).

Concerning the "Cro-Magnon race," the following sums up the opinion:

Both a critical study of the abundant literature on this subject and our own observations have strengthened us in the opinion that in all probability no *homogeneous* "Cro-Magnon race" has existed, but that the rather varied types which have been called so, cannot for the present be considered anything but crosses arising from the mixture of different races in accordance with the Mendelian laws (p. 175).

In the time that has elapsed since the measurements were made for the *Anthropologia Suecica* of 1902, stature has increased thirteen millimeters, and an increase is found in all the provinces of Sweden (p. 176). Cephalic index has decreased from 78.1 in 1902 to 77.7 in 1926.

Cephalic index and morphological face index vary geographically, but remain constant throughout different professional groups and social strata. Stature is greatest in the towns, smaller in the agricultural communities, and smallest in the industrial communities. Persons belonging to the highest social stratum are taller than those belonging to the intermediate stratum, and these in turn are taller than those belonging to the lowest stratum. There is no occasion to doubt that these variations in stature cannot be explained by differences in milieu alone, but depend also on differing racial composition in the respective groups of population (p. 179).

A very close connection exists between eye color and hair colors. The hair color which most closely follows the color of the iris is the eyebrow color, after which comes the pubic hair, and last the head hair. Red hair color when correlated to eye color seems to show the same relations as light brown hair (p. 180).

Northernmost and southernmost Sweden, as well as the city of Stockholm, have the greatest proportion of brown-eyed persons (p. 175).

For the entire kingdom the frequency of the Purer Nordic type is 30.8 percent, of the Purer East Baltic type 8.7 percent, of the light mixed type (individuals with light eyes and light head hair other than Purer Nordic and Purer East Baltic) 27.1 percent. This makes 66.6 of the population light eyed and light-haired (p. 181).

As the editors clearly recognize, the work leaves many problems unsolved, which it is planned to elucidate in the future. It is to be hoped, too, that the individual measurements will be made available.

The enlightened example of the Swedish government in establishing the Swedish State Institute for Race Biology is one which other nations would do well to follow. The usefulness of such an institution was so well realized in Sweden that the Riksdag gave assent to its establishment without voting, on May 13, 1921.

Although written in English this splendid work was published in Sweden, being printed by Almquist and Wiksell Printing Company, Limited. It sets a high book-making standard in every respect that a scientific book should and contrasts with the all-too-frequent careless contemporary scientific productions in English-speaking countries.

E. W. GIFFORD

MISCELLANEOUS

In Commemoration of M. A. Castren on the 75th Year from his Death.
(Published by the Academy of Sciences, Leningrad, 1927. Pp. 1-141. In Russian.)

The great Finnish linguist, Matthias Alexander Castren, was born in Finland, December 2, 1813, and died May 7, 1852. He did not reach the age of forty by one and a half years. His first article (on the Kalevala) appeared in the "Helsingfors Morgonblad" of December, 1836, and thus the whole cycle of his scientific investigations and writings embraces a period of only sixteen years. It is almost unbelievable to conceive how many journeys he undertook and what a number of investigations he accomplished in such a short time.

He investigated twenty languages, with many dialects, which nobody had studied before him. The monumental series of his chief publications, under the editorship of the Russian academician, A. Schiefner, includes twelve volumes under the title of *Nordische Reisen und Forschungen* as follows:

- I. Reiseerinnerungen aus den Jahren 1838-1844.
- II. Reiseberichte und Briefe aus den Jahren 1845-1849

- III. Vorlesungen über die Finnische Mythologie.
- IV. Ethnologische Vorlesungen über die Altaischen Völkerschaften.
- V. Kleinere Schriften.
- VI. Versuch einer Ostjakischen Sprachlehre (two editions).
- VII. Grammatik der Samojedischen Sprachen.
- VIII. Wörterverzeichnisse aus den Samojedischen Sprachen.
- IX. Grundzüge einer Tungusischen Sprachlehre.
- X. Versuch einer Burjatischen Sprachlehre.
- XI. Versuch einer Koibalischen und Karagassischen Sprachlehre.
- XII. Versuch einer Jenissei-Ostjakischen and Kottischen Sprachlehre.

The book comprises ten articles by noted Russian linguists, philologists, ethnographers, and anthropologists:

- 1. Introduction, by S. F. Oldenburg, the Permanent Secretary of the Russian Academy of Sciences.
- 2. Castren as a Man and Scholar, by W. G. Bogoras.
- 3. Castren, the Altaist and Ethnographer, by L. J. Sternberg.
- 4. Castren, the Finnologist, by D. W. Bubrich.
- 5. Castren, the Investigator of the Samoyed, by N. N. Poppe.
- 6. Castren, the Turkologist, by A. N. Samoilovich.
- 7. Castren, the Mongologist, by B. J. Vladimirtzev.
- 8. Castren, the Investigator of the Palae-Asiatics, by W. G. Bogoras.
- 9. Castren, the Tungusologist, by J. P. Koshkin.
- 10. Bibliographical Materials, by L. B. Modsalevsky.

Each of these authors gives an impressive characterization of Castren as a man, scholar, traveler, investigator, and writer. Castren was a penetrating thinker. In the determination of sounds of recordless languages he anticipated the methods of the present phonetics. He laid the foundation for the study of the "Mongoloid" languages. He demonstrated the relation of Finno-Samoyedic languages with the languages of the Turks, Mongols, and Tungus. He tried to bridge also the gap between the Mongoloids and Palae-Asiatics (or "Ameri-canoids" in the writer's terminology) through the Yeniseians, and it remained only to extend the connections to the languages of the Eskimo and American Indians, which connections are the object of the most recent studies. In the realm of religion he outran Tylor and Spencer, taking the stand of the latest theories concerning magic, shamanism, and religion. Castren formulated long before MacLennan, and more correctly, the institution of exogamy; and as concerns marriage regulations within the clans of the Siberian natives and between the clans he may be regarded as the predecessor of Morgan.

During his long journeys, combined with many hardships and assiduous studies of natives in their unhealthy huts and tents, the

physical organism of Castren gave way. He contracted consumption. He was aware of it, nevertheless he continued his investigations, saying that the highest joy of a man is to offer his life for an idea. And his idea was the study of primitive human companions. He married, however, about a year before his death and shortly before his death a son was born to him. Pausing here, we wish to say that it would be worth while to translate into English this little book on a great man.

In connection with Castren another great name must be mentioned here, that of the honorary member of the Imperial Russian Academy of Sciences, Professor Anton Schiefner, who, neglecting his own scientific work, devoted many years of his life to the scrupulous working out and preparing for the printer of the material collected by Castren. This he did mostly after Castren's death. There remained, however, some material not worked out as yet.

Castren's first records were written in Finnish but he soon adopted the German language, his style being revised by Schiefner. With the Russian language Castren became familiar in Siberia. The members of the Russian Academy of Sciences of that time were mostly Germans, of Germany or of the Russian Baltic provinces, and the publications of the Academy were mainly printed in German. This had its advantage, the publications being accessible to foreign scholars. Many of the German publications of the Russian Academy of Sciences were later translated into Russian, as for instance, Middendorff's, Schrenck's, Dittmar's, and other papers. When Russian scholars became preponderant, the Russian language was adopted, with casual issues in two languages.

WALDEMAR JOCHELSON

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REPORTS

ARCHAEOLOGICAL FIELD WORK IN NORTH AMERICA DURING 1927

Each year the Committee on State Archaeological Surveys of the Division of Anthropology and Psychology of the National Research Council compiles a summary of the archaeological activities of the various state agencies. The work done by them is, however, only a part of all the archaeological investigations conducted in North America. In order to make this annual report more complete, last year the committee invited institutions other than state agencies to participate in this compilation. A similar invitation extended this year met with a whole-hearted response for which the committee desires to express its appreciation. If any organization has been omitted inadvertently, it is hoped that it will communicate with the committee.

At a recent meeting of the committee in Beloit, Wisconsin, it was decided to alter slightly the method of presentation of this report. It was felt that the interests of the reader would be met more adequately by placing under a single head the work done in a given region by all organizations. At present the most practical division of the continent appears to be by governmental units, fully realizing, of course, that neither culture areas nor the work of any one expedition may be confined to a single political unit. So far as possible the various activities have been placed under that heading in which most of the field work was accomplished. To the report proper there has been added an index of the organizations which have cooperated in its compilation, together with the divisions under which their summaries are given.

The function of the Committee on State Archaeological Surveys is to act as a correlating body for archaeological research in North America. It attempts to keep in touch with all work, and so to study and digest this information that it will be able to render assistance and encouragement resulting not only in increased scientific activity, but also in a closer and more serviceable relationship between the many investigators and institutions working in this field. The elimination of duplicate effort and the fostering of cooperative investigations should tend to bring about a more rapid progress toward the solution of the intricate problems which confront the North American archaeologist.

Alabama. Further evidence of the existence of urn-burial as high up the Alabama river as its source has been discovered by members of the Alabama Anthropological Society doing work at the junction of the Coosa and Tallapoosa rivers. Typical examples of urns containing bones of the deceased, which were evidently dried before insertion into the vessel, have been unearthed during the past year.

Village sites have been located on the west bank of the Coosa river in Elmore and Chilton counties. Instances of settlements have heretofore been rare, most of the habitation sites being in the valley east of the river and across the ridge on the Tallapoosa.

A few finds of archaeological objects have been made along the Sipsey river in western Alabama and in the central part of the state on both sides of the Alabama river. Active interest on the part of collectors is shown in the northern part of Baldwin county.

*Peter A. Brannon, President,
Alabama Anthropological Society,
Montgomery, Alabama*

Alaska. Mr. Henry B. Collins, Jr., Assistant Curator of Ethnology, U. S. National Museum, with Mr. T. Dale Stewart of the Museum staff, carried on anthropological work in southwestern and western Alaska. The greater part of the time was devoted to the large and little-known island of Nunivak, although brief stops were made at a number of native settlements from Bristol bay to the mouth of the Yukon. Skeletal material and measurements on the living were obtained in sufficient numbers to show the physical type of the Eskimo of this region, who are the most primitive and least affected by white contact of any group to be found in Alaska. This work was financed by the Bureau of Ethnology, U. S. National Museum, American Association for the Advancement of Science, and the American Council of Learned Societies. Under a grant from the National Academy of Sciences, Mr. H. W. Krieger of the U. S. National Museum, explored a site at Bonasila on the Yukon on which Dr. Hrdlicka had done work during the preceding season. This site is interesting as it contains skeletal material not hitherto identified in America.

*H. W. Dorsey, Chief Clerk,
Smithsonian Institution*

Arizona. During 1927, the Arizona State Museum conducted field work in three localities, namely: first, an investigation of the pithouse and late Pueblo ruins along the Gila river between Bylas and San Carlos on the San Carlos Indian reservation; second, a study of the early Pueblo (pithouse) sites and late Pueblo (cliffhouse) sites in the Lukachuka mountains in northeastern Arizona; and third, an examination of the early Pueblo (rectangular pithouse) sites near Tanka Verde mountains in the Santa Cruz valley of southern Arizona. The Department of Archaeology, of the University of Arizona, through its graduate students and seniors, has studied the house structures, pottery, and textiles of the prehistoric Southwest.

Byron Cummings,
Arizona State Museum

Mr. Earl H. Morris made a return visit to Canyons del Muerto and de Chelly to secure a full series of log sections from the ruins previously explored by the Museum under the Ogden Mills Survey. From the study of these log sections by the "tree-ring" method, it is hoped to determine the ages of these ruins.

Clark Wissler,
Department of Anthropology,
American Museum of Natural History

Under a permit granted to the Museum by the Department of the Interior, Mr. Noel Morss made an archaeological reconnaissance of the Moenkopiwash region in Coconino county, Arizona.

C. C. Willoughby, Director,
The Peabody Museum,
Harvard University

Excavations were conducted at the Casa Grande ruin, under government permit, consisting principally of intensive excavation of a burial ground near the main group, and stratigraphic tests in rubbish mounds there and at the Adamsville group, just off the National Monument. The principal result was the establishment of a pottery sequence, an account of which will soon appear as a bulletin of the Museum.

Charles Amsden, Curator,
The Southwest Museum

During the summer of 1927 we visited sixty-seven archaeological sites in New Mexico, Colorado, and Arizona, primarily for the purpose of gathering information concerning prehistoric irrigation. In the area around Phoenix, which we call the culture district of the Lower Salt, there was cultivated by irrigation a continuous, compact body of land of 100,000 acres, and on the Gila, around the Casa Grande ruin, a net area of 15,000 acres. An excavation of the ruin of La Ciudad, on the edge of the city limits of Phoenix, has revealed additional evidence that the culture of the Lower Salt is distinct from that of the pueblo peoples in general, and seems to point clearly to a group migration from the south, presumably from Mexico, at an early period.

Omar A. Turney,
The Turney Museum

California The field work in archaeology during 1927 consisted of an exploration on Santa Cruz island in the southern part of the state. Part of this was in cooperation with the Santa Barbara Museum of Natural History, and part wholly under our own auspices. There was other work, but it was not in the field. As a result we have now in hand or in press four archaeological reports dealing with California or neighboring states.

A. L. Kroeber,
University of California

Georgia. An archaeological survey of Georgia was begun in July, 1927. It is planned that each county be thoroughly investigated and a record made of all sites. These will be located upon a map of the county in which they were found, and both records and maps published together. Wherever available, type specimens of pottery fragments will be collected and stored for future study. Georgia is interesting geologically, in that there are three separate divisions; the coastal plain, the uplands, and the highlands. Each presents a different natural environment, and archaeological variations can be noted. To what extent this natural division has affected early culture will be shown when the survey is completed. To date, four counties have been thoroughly surveyed and many individual sites investigated. Through public interest, approximately 500 sites (mounds, villages, etc.) have been reported. These will be investigated as the different counties are surveyed.

Margaret E. Ashley,
Columbia University

In January Dr. Moorehead went to Cartersville, Georgia, to resume explorations of the Tumlin site, known as Etowah. The excavation of the mounds was completed, and a number of stone graves and their contents removed. Extensive work was then done on the nearby village site, which covers more than thirty acres, only a small fraction of which has been examined. In addition to a number of burials and smaller objects, several burned floors or platforms were uncovered at a depth of one to three feet. They may have been house sites or dance floors. These burned areas have all been carefully mapped and studied. The Etowah site, in the course of three field seasons, has yielded a very extensive collection of material.

Warren K. Moorehead,
Phillips Academy,
Andover, Massachusetts

Illinois. The archaeological survey of Illinois which was inaugurated in 1926 was continued through last spring and summer. Mounds, village sites, and trails have been fully recorded in ten of the northern counties. Local collections have been studied, and distribution maps are now being prepared. All historical data, surveyors' records, and other like sources of information are now being searched, while a final check is obtained by excavation of type sites in each locality. The most extensive excavations were carried on near Hanover in Jo Daviess county, and at Channahon in Grundy county, where the University cooperated with Mr. George Langford on the Fisher site. The purpose of the Hanover excavations was to learn the probable use of the mounds overlooking Apple river. Last season seven of these mounds were opened without finding any burials or other indication of their use. The series culminates in two huge mounds, one of which was opened this year. As in the smaller mounds there was a complete absence of burials. However, there were indications of a platform at the top, and it may be assumed that this mound, and probably the smaller ones also, was used as a platform or base for a ceremonial structure. A considerable amount of camp refuse, consisting chiefly of pottery fragments and animal bones, was found in the material of which the mound was constructed. Among the pottery pieces was a tripod leg for a bowl which resembles the lower Mississippi types. Several linear and conical mounds opened near Galena yielded burials. At the Fisher site the University cooperated with Mr. Langford in excavating several of the pits or de-

pressions which surround the two large mounds. It has been suggested that the pits may have been the lower parts of dwellings, but no timbers were found. However, the soil inside the pits is riddled with holes which were used as food containers, since some of them still contained shelled corn and unopened clam shells. Most of these caches had been filled with camp refuse, but portions of dismembered bodies appeared in several, accompanied by utensils of stone, bone, and shell. The pottery fragments seem to indicate that the pits were used by the builders of the primary mounds, and consequently antedate white settlement by a considerable time.

Fay-Cooper Cole,
University of Chicago

Early in April the Cahokia Mound Survey of the University of Illinois resumed operations. Under the direction of W. K. Moorehead, Mr. Jay L. B. Taylor, who was Engineer in Charge, and his staff spent four months working on mound no. 66, which is some 500 feet long and about 30 feet high. This mound is composed of heavy black gumbo, which presents little stratification. In the course of the excavations some two hundred skeletons were disclosed, which were in such poor condition that nothing but the crowns of the teeth remained. Excellent large diagrams were made by Mr. Taylor, showing the deposits in some detail. From September to December the Survey excavated near Havana on the Illinois river. In one mound each burial had been placed on a layer of large Tennessee flint discs, seven to nine inches in length. Decorated pottery, copper axes, split boar tusks, and ornaments made from upper and lower human maxillae were found. The revised report on four seasons' work at Cahokia will soon be issued. In addition to the purely archaeological section, it will contain reports by Dr. Leighton and Professor Baker.

W. K. Moorehead, Director,
Cahokia Mound Survey,
University of Illinois

Indiana. J. Arthur MacLean finished the excavation of the Albee mound in Fairbanks township, Sullivan county, early in August. A very interesting contrast is afforded between the burials discovered last year and those unearthed this year. Practically all of the former contained votive offerings, with a profusion of shell beads. The latter had few votive offerings and the ornaments associated with them

were quite different. One of the most interesting of these was a small copper gorget buried with a child. A portion of a string of shell beads under this gorget and protected by it remained intact, even the string being perfectly preserved. It was a very evenly twisted string of vegetable fiber. Only a very few small pieces of broken earthenware were found last year. This year several interesting vessels were discovered, one almost complete, another, evidently of very large size, in fragments. In all, during the two years, forty-one burials were unearthed. Enough of the skeletons were in a good state of preservation to secure fairly accurate measurements. The forms of burial were carefully noted and all material preserved. A complete report of the two years' work will be printed as soon as possible as an extra number of the *Indiana History Bulletin*.

C. B. Coleman, Secretary,
Indiana Historical Society

One of the several mounds opened by a field party under my direction during the past summer is located on the edge of the valley rim about one mile west of the town of Worthington, in Greene county, Indiana. It was a small mound located about 100 feet above the valley floor, and constructed largely of fine sand containing some loess-like material. The burials were in two horizons, one about $1\frac{1}{2}$ to 2 feet below the surface, the other $3\frac{1}{2}$ to 4 feet. The specimens in the lower horizon were much more decomposed than those in the upper horizon. Near the heads of the burials in the lower horizon pieces of pottery were found. Some of these were of small size and others were very large. The second mound, which is known as the Baker-Lowe mound, forms a conspicuous topographic feature, standing out on the valley floor, and is situated some three miles south of Worthington. This mound also contained two burial horizons and about the same kinds of artifacts as were found in the first one, namely, stone axes, hammers, spearpoints, arrowpoints, pearl ornaments, beads, awls, and potsherds.

W. N. Logan, State Geologist,
Indiana Department of Conservation

Iowa. The summer of 1927 was spent in the field in northeastern Iowa and in work on manuscripts in the library of the State Historical Society of Minnesota. The field work involved the study of numerous local collections of material, the examination of sites known to the

local collectors, search in many likely locations for new sites, and the excavation at Clermont, Fayette county, of three mounds. As in previous years, especial effort was made to find and collect material from pottery-producing sites. The work on manuscripts at St. Paul had to do with the very extensive materials collected by Theodore H. Lewis and Alfred J. Hill, 1881-1895, from fourteen of the north central states and entered under the title "The Northwestern Archaeological Survey." Much valuable information on Iowa archaeology was found here. With the exception of certain sites and localities that need to be revisited during 1928, the season saw the close of field work on what has been called the preliminary archaeological survey of the State. Some personal work has now been done by the undersigned in each of the ninety-nine counties; considerable newspaper publicity has been secured; some three thousand personal letters have been addressed and replies filed; and a bibliography has been prepared.

Charles R. Keyes, Research Associate,
The State Historical Society of Iowa

Kentucky. As the culmination of several years' activity in excavation, collection, and systematic description by the authors, the Kentucky Geological Survey has published volume 34 of series 6, entitled "Ancient Life in Kentucky," by Dr. W. S. Webb and Dr. W. D. Funkhauser, co-authors, of the University of Kentucky. This publication—the first in its particular field—is principally devoted to archaeology, though an introductory chapter or two deals with ancient life from a geological standpoint as preliminary to the presentation of the principal subject-matter. The authors have attempted to present a semi-popular discussion for the entire state. The subject-matter is illustrated with one hundred and seventy-five new maps, photographs, and diagrams. The Kentucky Geological Survey and the University of Michigan cooperated in a month's archaeological survey of the district about Monticello, in Wayne county. Dr. Carl E. Guthe, who conducted the work, devoted part of the period to exploration, and part to excavation. Evidences of Indian occupation were found to be most prevalent in the valley bottoms of the Cumberland river. Stone implements were also found, however, on farms on the highland rim, and also in the mountainous edge of the Cumberland plateau. Mounds seemed to occur sparsely only in the river bottoms. The limestone outcrops, which occur along the steep-sided

valleys leading back from the river, give rise to ledges of overhanging rock under which, in many cases, distinct evidences of Indian encampments were seen. Several of the many caves of the region showed traces of occupation. The Hines cave, which had been partly excavated some years ago by a group led by Dr. Webb and Dr. Funkhauser, was trenched in order to study stratification. Occupational debris was disclosed in well-defined strata to a depth of nearly ten feet, covering undisturbed sand and broken limestone. Near Eadsville a rock shelter was excavated, wherein hearths and occasional implements to a depth of four feet indicated that this shelter, representative of many of this district, had been used by Indians over a relatively long period.

W. R. Jillson, State Geologist,
Kentucky Geological Survey

Louisiana. Most of our work in local archaeology during the past year was in connection with collections which we had made, or which had been given to us, during the previous year,—stone and pottery objects from Lake Ponchartrain, Louisiana, stone and pottery from Lake Catahoula in northern Louisiana, and the Jones collection of pottery, stone, and shell from various parts of Alabama. The last includes two carved shell plaques, and a small ornamental copper spearhead from Towesa, Alabama. Mr. Blom paid a visit to the Tom Harp plantation in Morehouse parish, where he inspected the mound group and made a sample collection. Barring a few post-holes, no excavation was attempted. The Morehouse material shows a close relationship with that from Lake Ponchartrain, which belongs to a general type reaching along the coast to Florida, whence it probably eventually was derived. The poor chipping may be due to the necessity of using even the most refractory stone in a district where all stone is rare. The Catahoula material, on the other hand, is finely chipped and in some cases polished, and seems to be related to the cultures further north in the Mississippi valley.

Oliver LaFarge, acting in charge,
Department of Middle American Research,
Tulane University of Louisiana

Michigan. During the year, twenty-five hundred old maps have been examined critically for the purpose of locating the old trails, portages, copper mines, corn fields, village sites, burying-grounds,

sugar camps, earthworks, and other evidences of Indian occupancy. About twenty-two hundred of these are various township maps prepared and filed by the official government surveyors who "laid out" the state in accordance with Hutchins' scheme for all the government lands, adopted after 1816. Four hundred of these township charts with the accompanying field notes, record hundreds of items, mostly trails, which have been entered upon a series of uniform maps of the various counties. Similar data were also obtained from many old French maps, dating back in some cases to before 1664, upon which are located villages, paths, waterways, mines, and missions. Photostat copies of convenient sizes of every map that comes into our hands are filed among the records of the department. A number of archaeological sites were visited during the course of the summer by Dr. Hinsdale and Dr. Greenman, near Ludington and other parts of Michigan. As far as possible such reconnaissance is done during the early summer before the rank growth of vegetation obscures the smaller earthworks. In June, Dr. Hinsdale spent ten days excavating a series of mounds on the shores of West Twin lake, in Albert township, Montmorency county, upon the property of Mr. Herman Lunden. Mr. Lunden expressed a lively interest and rendered valuable aid, particularly by having the mounds restored to their original contour and then turfed over, in conformity with accepted archaeological procedure. The burials in some of these mounds were in three horizons. The lowest burial was three feet below the ground-level, the middle stratum about two feet above ground-level, and the uppermost eighteen inches below the crest of the mound. Twenty-three human skeletons, a skeleton of a dog, and several other specimens were obtained. Dr. Hinsdale recently published a pamphlet upon the Indians of Washtenaw county, and a paper on "Indian Corn Culture in Michigan." Dr. Greenman, in addition to continuing his studies of the earthworks of Michigan and their distribution, devoted some time to an intensive investigation of the region about Cross Village, which has been an Ottawa settlement since the earliest records. He obtained a good collection of potsherds and several early trade articles. Mr. Edward J. Stevens, Secretary of the Michigan State Archeological Society, recorded a series of camp sites along the Paw Paw river. Kalamazoo has formulated plans for a museum in connection with the Public Library. Dr. Hinsdale has made a special study of the extensive pharmacy used by Michigan Indians, and of their methods of gathering, preserving, and preparing various

roots, herbs, and barks for medicinal purposes, which has resulted in a large collection of data and specimens illustrating this subject. In the more isolated communities the Indians still retain the older medicinal customs, and prefer their own doctors and midwives, in distinction to those Indians living near European communities, who make use of the "white man" doctors.

W. B. Hinsdale,
Museum of Anthropology,
University of Michigan

Nebraska. The Nebraska State Historical Society has conducted explorations along the entire length of the Loup River valley, along the Republican River valley, and in the Nemaha River valley in the southeastern corner of the state. A number of isolated localities have been explored and reported as occasion demanded. This exploration is the result of five years' effort on the part of E. E. Blackman, curator of the museum. Near the mouth of the Nemaha river is an extensive ruin which covers a half section of land. This site marked the beginning of our efforts to chart systematically the Missouri River area of the state. It does not show evidence of earth houses, but rather of tipis, with which were associated caches both within the house circle and around it. The village was permanent rather than temporary, and a study of the site and the nearby burial mounds indicates that many years have elapsed since its occupation. From it has been gathered a large quantity of artifacts which are now in our museum. The flint implements were skilfully made, resembling in workmanship those from certain regions in Ohio, and differing very much from the typical Nebraska implements, both in workmanship and material. Some of them are of flint from Kentucky, Tennessee, and the east. A well-shaped, unbored "Monitor" pipe was found, indicating that the form was known. The pottery resembles the Osage ware in being shell-tempered, but the forms of the vessels, rims, handles, and decoration are similar to the Ohio types. According to Indian legend, the Skidi band of the Caddoan linguistic stock built a "grass house" village near Genoa, Nebraska, as early as 1350 A.D. This site, as well as a number of earth house villages along the Loup River valley, has been excavated and studied. The hills of the area as far north as the Niobrara valley are dotted with archaeological sites, in many of which excavations have been made and collections obtained. The pottery is tempered with sand and

crushed potsherds. The decorated handles and rims are typical and numerous. In the Republican valley the permanent villages of the three bands of Pawnee who left the region about 1800 have been cross-sectioned and studied. The materials found on the site, as well as documentary evidence, indicate that these sites are historic. The large area north of the Loup river still remains to be explored and charted.

E. E. Blackman, Curator,
Nebraska State Historical Society

Nevada. Mr. M. R. Harrington of the Museum of the American Indian, Heye Foundation, undertook a reconnaissance of Pueblo sites in Nevada for several months and then devoted his attention to excavating some dry caves on the Pyramid Lake reservation, in Washoe county.

George G. Heye, Director,
Museum of the American Indian,
Heye Foundation

New Mexico. Dr. F. H. H. Roberts, Jr., of the Bureau of American Ethnology, spent June and July in the Chaco canyon, New Mexico, excavating a Basket Maker III village. The site was quite extensive, containing eighteen houses, forty-eight storage cists, and one large kiva or circular ceremonial room.

H. W. Dorsey, Chief Clerk,
Smithsonian Institution

Mr. Morris made a few preliminary trial excavations at the ruins adjoining the Aztec Ruin National Monument, revealing hitherto unobserved evidence of cremation as a prehistoric burial custom. The major archaeological work of the season, however, was the excavation of burial sites at Mitten Rock and Tocito, New Mexico, by Dr. H. L. Shapiro. These sites, as well as others in the valley of the La Plata river which were also excavated, in cooperation with Mr. Earl H. Morris, were rich in post-Basket Maker burials, and gave a good return of skeletons and pottery.

Clark Wissler,
Department of Anthropology,
American Museum of Natural History

The Pueblo Bonito expeditions of the Society were concluded in 1926, but in 1927 the writer returned to Chaco canyon, north-western New Mexico, to begin preparation of his final report on the explorations. No excavations were undertaken during the past season. As opportunity offered, further study was made of various works on the cliffs bordering Chaco canyon. Previously we had observed flights of broad stairways, pecked from solid sandstone, and cleared paths—described by Navaho Indians as “roads”—each leading from the canyon rim back across the mesas, usually toward the head of a *rincon* in which pine trees may formerly have grown. I am inclined toward the belief that these so-called “roads” and the stairways were constructed by the old Bonitians to facilitate transportation of timbers used in their great communal dwellings. Terraces supported by massive masonry are to be found here and there in the breaks of the canyon. Stairways cut where steps seemingly were not required, holes pecked in exposed surfaces from which all loose stones had been cleared and piled circularly, and other evidences of Bonitian industry that attracted our attention in the earlier years, were examined. But the real reason for returning to Pueblo Bonito in 1927 was to begin the writing of our reports on the seven-year National Geographic Society expedition. It is hoped these reports may be completed within the year.

Neil M. Judd, Director,
Pueblo Bonito Expeditions,
National Geographic Society

Mr. and Mrs. Cornelios B. Cosgrove finished their excavations of Swarts Ranch pueblo, in the Mimbres valley, New Mexico. Seventy-two skeletons were uncovered and one hundred and seventy-six pieces of pottery and one hundred and thirty other artifacts secured. After the work was finished at this pueblo, a cave in the vicinity of Las Cruces, New Mexico, was explored, also another near El Paso in Texas. Some of the material recovered was undoubtedly of Basket Maker origin. It included bags, coiled basketry, darts used with spear-throwers, and other articles usually found with this class of remains.

C. C. Willoughby, Director,
The Peabody Museum,
Harvard University

The tenth field season of the Pecos Expedition of the Department of Archaeology of Phillips Academy, Andover, was devoted to the excavation of a Pueblo ruin on the west side of the Arroyo de Pecos, opposite Pecos. Preliminary work had been done at this site during the summer of 1926. About one hundred rooms and four kivas were cleared and some seventy-five skeletons were removed. The houses were found to have been built of adobe, but, because of poor construction and extensive destruction by floods, the walls were in very poor condition. The site dates from a period prior to the foundation of Pecos itself, and it was abandoned before the beginning of the first Glaze period. There is evidence that the occupants were forced to leave the site because of its defenseless situation and that they established themselves upon the Pecos mesa in order to avail themselves of the protection offered by the rocky bluffs which surround it. The principal interest of the excavations lay in the fact that they produced a pure sample of the material culture of the Pecos Indians during the black-on-white period.

A. V. Kidder,
Department of Archaeology,
Phillips Academy, Andover, Massachusetts

A field season's work of six weeks was carried on in the Mimbres region in southwestern New Mexico, practically completing the field work at the Cameron Creek site in preparation for a detailed report. Three previous expeditions had been made to the same site. The work this year was undertaken in co-operation with the Museum of New Mexico. The balance of the year was spent in intensive laboratory work and instruction, using the material obtained in this field work as a basis. Occasional exploration trips were taken into the mountains of San Diego county, California, but no excavation work was undertaken.

Wesley Bradfield,
The San Diego Museum

Excavations were begun by the Southwest Museum at the ruin on the Manuel Galaz ranch near Silver City, New Mexico, in the Mimbres area. The ruin proved so large, and our own time and resources so relatively inadequate, that nothing conclusive can be said of this operation. A number of excellent specimens of pottery, shell ornaments, bone work, and a copper bell, were secured. A trip of

reconnaissance was made along the Little Colorado and in adjacent regions in western New Mexico, using Springerville, Arizona, as a base, and covering the region from the Santa Fe railroad to the Mexican border. Sherd collections were secured from one hundred and two different sites, to form the nucleus of our "sherd library" at the museum.

*Charles Amsden, Curator,
The Southwest Museum*

New York. During the year 1927 the Rochester Municipal Museum continued its examination of archaeological sites in New York, Pennsylvania, and Ontario. Intensive work was done at two stations: one at Levanna, Cayuga county, and one at Lamoka, Schuyler county. The Levanna site proved to be of the third Algonkian period and identical with the Owasco site explored in 1916. Field examinations revealed a widespread occupation throughout the Finger Lakes region of central New York by these people. They were in possession of the region when the Iroquoian people came in about 1300 A.D. The Lamoka station at the head of Lamoka lake proved of considerable interest because of the abundance of its artifacts. In a trench 28 feet wide and 225 feet long more than five thousand specimens were taken out this year. The deposits, which were stratified, were nearly 6 feet deep, the original layer being directly upon the original valley floor. The lower deposits contained many metates, some bone implements, numerous arrowpoints, net sinkers, and many hammerstones and mullers. Above this the layers were rich in bone and antler implements, more than thirteen hundred being recovered. About twelve are painted with red spiral stripes from end to end, these being the only examples of painted bone and antler we have noted from any sites in the eastern areas. The Lamoka occupation began as one of non-pottery users. Its first inhabitants were thin-skulled dolichocephalic people who occupied the site as a fishing station, and evidences seem to indicate that here they dried fish and eels in enormous quantities. When they had built up refuse layers of more than 4 feet, another people came in and destroyed the first occupants. The newcomers were a brachycephalic people who brought with them marine shells and olivella beads. They seem to have tortured, burned, and eaten the original inhabitants. The round-heads continued the occupation of the site and were pottery makers. In every skeleton of the brachycephalic people, the burial was in the

flexed position. In all cases there was abnormal dentition with supernumerary teeth, particularly incisors. The date of this occupation seems quite remote. The culture converges at the point where the archaic and intermediate (ceramic) periods meet. The site is from 2000 to 4000 years old in the opinion of those who have worked upon it and know the characteristics of the New York occupations.

Arthur C. Parker, Director,
Rochester Municipal Museum

In New York state archaeological work was done during the summer by Mr. Frederick P. Orchard in the vicinity of Port Washington, Long Island, and also by Mr. Foster H. Saville in the vicinity of South Hampton, Long Island.

George G. Heye, Director,
Museum of the American Indian,
Heye Foundation

Ohio. The archaeological activity of the Ohio State Museum, during the year 1927, centered in the examination of the great central mound of the Seip Group of Prehistoric Earthworks, in Ross county, Ohio. This structure, the second largest tumulus of the highly developed Hopewell culture in existence (Hopewell proper being the largest), was the object of explorational activities during the summer of 1926. Approximately one-fourth of the mound remains to be examined this coming summer, after which the tumulus will be restored to its original form, and a small park of ten acres will be created. The mound is 250 feet in length, 150 feet wide, and 30 feet in height. A total of seventy-nine burials have been disclosed, with probably ten to fifteen burials remaining to be exhumed. A gratifying amount of material has accrued from the explorations of the structure, with the result that the culture of its builders is well illustrated. A short time during the spring was devoted to a preliminary examination of two dry caves or rock shelters in southern Ohio, in which interesting evidences of human occupancy were found. Perishable material, such as woven fabric, twine and cord, sandals, feather work, and so forth, were secured, as well as two partially mummified skeletons.

H. C. Shetrone,
Ohio State Museum

Pennsylvania. The Indian Survey of Pennsylvania has made real progress in the year 1927. The bill introduced into the Legislature passed the Senate unanimously, and was about to be presented for action in the House, when the governor changed his plans and put the project in the Code for the State Historical Commission, allowing an appropriation of \$10,000 for the work in the General Appropriations Bill. The governor followed this action by appointing to the Commission Miss Frances Dorrance, the Director of the Wyoming Historical and Geological Society, who has been the active promoter of the Survey, and is now the secretary of the Commission. The preliminary survey of the state will be completed under the Commission. Mrs. Alanson Skinner has been engaged to inspect the collections and records held by the collectors and to transfer to the quadrangles of the Geodetic Survey the information secured by the preliminary survey. A new development is the ethnological study of those descendants of the Delaware tribes who are still living in tribal groups in this country and in Canada. Dr. Frank G. Speck of the Department of Anthropology of the University of Pennsylvania will direct the work. Since the State Historical Commission cannot co-operate with other organizations in archaeological research because of the question of ownership of specimens found, and also cannot raise money for such a project, nor spend the principal of any fund thus raised, it was necessary to put the work of the extended survey under the directorship of some other organization. Consequently at the annual meeting of the Pennsylvania Federation of Historical Societies, an organization for some time in full sympathy with the Survey, in January of 1928, a resolution was passed that the President of the Federation appoint a committee of five, with power to act in the raising of the fund and the direction of the Survey. It is hoped that with the coming of spring, sufficient funds may be collected to permit not only starting the field work at once, but extending it as well.

Frances Dorrance, Director,
Wyoming Historical and Geological Society

South Carolina. Dr. J. Walter Fewkes, Chief of the Bureau of American Ethnology, made a reconnaissance of the mounds in the neighborhood of Greenville, South Carolina, selecting several promising sites for future excavation. While in Greenville, Dr. Fewkes

examined a few collections of archaeological specimens from the vicinity.

H. W. Dorsey, Chief Clerk,
Smithsonian Institution

South Dakota. In the last report mention was made of the village site of doubtful origin on Firesteel creek near Mitchell, Davison county. We have been successful in having this site included in a tract of land purchased by the City of Mitchell for a reservoir. The old village is on a high terrace and will be preserved and developed as part of a city park. Groups of burial mounds have recently been located at Faulkton, Faulk county, and at Wessington springs, Jerauld county, which are of the same origin as all other mounds examined within the state. This record extends the western limits of the habitat of these early builders. No active field work of importance has been done this year, due to lack of funds.

William H. Over, Curator,
University of South Dakota Museum

Tennessee. Dr. Walter Hough, Head Curator of Anthropology, U. S. National Museum, was detailed to the Bureau for the purpose of examining a large burial mound at Indian Mound, Tennessee, in the summit of which several slab-box burials had been brought to light. He also visited village sites, flint quarries, and burial grounds in the vicinity, collecting numerous specimens.

H. W. Dorsey, Chief Clerk,
Smithsonian Institution

Texas. During the past year it has been possible to keep a force of men in the field investigating various camp sites and "burnt rock mounds" in the region around Austin. Several weeks were spent on a large mound at Cedar Park, eighteen miles northwest of Austin. The deposits are 5 feet 10 inches deep near the middle, and cover an area of about 300 by 150 feet. All of this large accumulation is entirely kitchen midden deposit, and we have recovered about two thousand specimens of artifacts therefrom, many of which seem to be peculiar to this region, and evidence the greatest possible skill in the art of chipping. We are finding rather positive traces of different culture levels. Recently I secured a collection of particularly beautiful examples of stone art, gathered in the hills some hundred miles west

of Austin, among which are several fine flint fishhooks. Since acquiring these I have visited private collections in different parts of the state and have found similar specimens in four of them. Many of these hooks show evidences of weathering incident to long exposure. At present it is my opinion that they are genuine ancient artifacts. However, I have not had time as yet to run down the history of these fishhooks, nor have I found specimens *in situ* in my field work.

J. E. Pearce,

University of Texas

Dr. F. H. H. Roberts, Jr., Archaeologist of the Bureau of American Ethnology, investigated cave sites near El Paso, Texas, during May.

H. W. Dorsey, Chief Clerk,
Smithsonian Institution

The first of our three objectives is a general survey of the Big Bend territory of Texas. During the past year seventeen additional sites have been located, which brings the total record up to one hundred and thirty-five localities in which some evidence of former Indian occupation has been recorded. Some of these places are open camps, some are rock shelters, and some are primarily pictograph or petroglyph sites. All have yielded more or less to the culture picture we are attempting to outline. A number of specimens as well as photographs, field notes, and drawings have been added to the museum collections. The skeletal remains have been forwarded to the U. S. National Museum. Our second aim has been a more intensive study of the dry rock shelters. With this idea in view a special permit has been secured from the owners of a particularly desirable site and work has commenced in the blasting away of obstruction rock and in the clearing of the entrance. Several specimens of interest and value have already been found. It is planned to continue this work as time permits. The third aspect of study concerns the pictographs and petroglyphs. In this investigation we have been particularly fortunate in having the aid and interest of O. L. Sims, of Paint Rock, Texas, who spent a large part of the past year in detailed and painstaking work at a large number of sites. It is hoped that this extensive and valuable material so carefully gathered by Mr. Sims will be available for publication at an early date.

Victor J. Smith,

West Texas Historical and Scientific Society

Utah. During 1927, the field work in San Juan county, Utah, was continued. The archaeological survey of the territory between Cottonwood Wash and Whiskers Draw was begun, and will be continued as facilities permit. No excavations were undertaken. However, some one hundred and fifty specimens of pottery, as well as a number of stone axes and hammers were added to the collections.

A. A. Kerr,
University of Utah

Dr. F. H. H. Roberts, Jr., of the Bureau of American Ethnology, spent August and September in a reconnaissance of the Montezuma Creek district in southeastern Utah.

H. W. Dorsey, Chief Clerk,
Smithsonian Institution

Early in the summer, Mr. Charles L. Bernheimer organized and led the sixth Bernheimer Expedition to the Navajo Mountain district in southern Utah and northern Arizona. Mr. Bernheimer reports the achievement of the objectives laid down for this season's work which were, in the main, to gather information on and locate sites of archaeological interest, to search for traces of animals of the Jurassic period, and to find a natural bridge of which reports had been heard. The expedition was eminently successful in every respect. Hundreds of prehistoric dwelling sites were seen and noted for possible future examination, though in every case preliminary search was made for potsherds and burial sites. At Bogoha Labyrinth, inaccessible cliff house sites were seen, and also a burial cist. A beginning was made for a trial excavation, but the falling of a huge boulder prevented continuation of the digging. Here also was discovered the most interesting ruin seen this summer, a cave containing mud and grass-walled but roofless houses built in pairs. These showed no signs of habitation, but the ground in front of the cave was strewn with potsherds of many types.

Clark Wissler,
American Museum of Natural History

Washington. Mr. H. W. Krieger, Curator of Ethnology, U. S. National Museum, was detailed to the Bureau of American Ethnology to continue his investigations along archaeological lines in the valley of the Middle Columbia and of the Snake rivers. Evidence

was exhumed in the vicinity of the Dalles, Oregon, showing the penetration of early northwest coast culture to that region. At the mouth of the Yakima, a cemetery was excavated where evidence was recovered showing the identity of culture with that of archaeological sites in British Columbia on the upper Frazer river. At Page, Washington, on the Snake river and in the canyon of the Snake fifty miles south of Lewiston, Idaho, additional evidence was obtained to indicate that the same culture at one time existed in the valley of the Snake. Certain rock sculptures in the canyon of the Snake and an atlatl recovered at Page seem to point also to an early connection with the Basket Makers.

H. W. Dorsey, Chief Clerk,
Smithsonian Institution

Wisconsin. An archaeological survey of the Geneva and Como Lakes region in southeastern Wisconsin was conducted by the Wisconsin Archaeological Society in cooperation with the Geneva Lake Historical Society. Mr. Charles E. Brown directed the field work with Mr. Theodore T. Brown as his principal assistant. During this survey several unrecorded mounds were located and excavated, and a considerable number of camp, village, workshop, and burial sites were mapped. Collections were obtained from every site, and the local collections were examined. The Geneva Lake Historical Society erected four bronze tablet markers on the Chicago trail, both on the south shore of the lake and at Fontana. Plans were made for a future historical museum and for an Indian camp ground at Geneva lake. During the year archaeological investigations were also conducted by various members of the Wisconsin Society in Jefferson, Sauk, Dane, and Kenosha counties. Several members of the Winnebago County Archaeological and Historical Society, an auxiliary of the Wisconsin Society, investigated the mounds and burial places in Shawano and Winnebago counties. The Oshkosh Public Museum purchased the archaeological collection of the late S. D. Mitchell, and the State Historical Museum acquired that of the late Dr. C. H. Hall. At Aztalan Mound Park the Wisconsin Archaeological Society made several improvements, including the placing of a descriptive metal tablet. Local movements for the preservation in parks of additional mound groups and for the founding of a number of additional museums were set in motion in several cities of the state.

Charles E. Brown,
Wisconsin State Archaeological Society

The summer season was devoted to the field study of two effigy mound groups, each including conicals and linears: the Kletzien group in Sheboygan county, and the Nitschke group in Dodge county. The expedition was led by W. C. McKern. The work accomplished included the charting and mapping of ninety-five mounds and one intaglio, the excavation of sixty-four mounds, and the acquisition of approximately one thousand study specimens. One hundred and seventy photographs were taken. A quantity of good skeletal material was added to the museum's study collections. The usual effigy mound culture was the only culture represented in the mounds or their contents. Inclusive burials, the chief features, were encountered indiscriminately in mounds of all shapes. Interesting pottery specimens and bone implements were found with the burials. With one exception, the skulls in all of them, where materials were sufficiently preserved to permit ascertainment, were entirely free from cradle-board deformation.

W. C. McKern,
Associate Curator of Anthropology,
Milwaukee Public Museum

Canada. Mr. D. Jenness spent the summer in Newfoundland seeking remains of the extinct Beothuk Indians. He visited Badger's brook, and Red Indian lake, and explored the coast and islands from the Bay of Exploits to Canada Harbor. On Long Island, in the Bay of Exploits, he discovered an untouched grave that contained the skeleton of an old woman, part of a second cranium, and many of the carved bone ornaments that were peculiar to Beothuk culture. From these and other sources, he obtained interesting collections of Beothuk material, which throw some light on the early history of these people and of their Eskimo neighbors to the north. Mr. W. J. Wintemberg made an archaeological reconnaissance from Tadoussac to the mouth of Richelieu river, Quebec, and excavated what appeared to be an early Algonkian workshop at Tadoussac. Mr. Harlan I. Smith carried on an archaeological reconnaissance in the vicinity of the Lower Skeena valley, British Columbia, incidental to his work on the preservation of totem poles. He also made a mould of the large intaglio petroglyph near Prince Rupert, one of the most striking petroglyphs in Canada, and began the intensive examination of a shell-heap on the property of Seal Cove Lumber Company at Prince Rupert. The minimum antiquity of this heap is indicated by a red

cedar stump bearing 364 rings of annual growth. This work was made possible through the co-operation of Mr. C. P. Riel.

Harlan I. Smith, Archaeologist,
Victoria Memorial Museum

Mr. Donald A. Cadzow made a comprehensive collection of archaeology from Cape Dorset, and also on the east coast of Labrador. Mr. George G. Heye excavated some old house sites on the Saanich peninsula, Vancouver Island, British Columbia.

George G. Heye, Director,
Museum of the American Indian,
Heye Foundation

Mexico. Dr. Herbert J. Spinden visited Middle America and was successful in finding an important ruin in southern Vera Cruz, Mexico. Its local name is Cerro de las Mesas, and the remains can be ascribed to the Olmeca. Human figures in low relief are shown on the monuments, also hieroglyphic inscriptions with dates.

C. C. Willoughby, Director,
The Peabody Museum,
Harvard University

A reconnaissance trip was made through northeastern Sonora, following the valleys of the Bavispe, Yaqui, and Sonora rivers, and extending as far south as the middle course of the Yaqui. The western periphery of the Casas Grandes area was definitely traced in the Bavispe and Yaqui valleys. The Sonora valley, farther west, contained plain brown ware of a modern type, with no trace of Casas Grandes or other type wares. House types in each area showed the rectangular grouped form, more orderly and distinctive in the peripheral Casas Grandes than in the Sonora valley, where the arrangement departed somewhat from the true pueblo form. Walls apparently consisted of a cobble or slab foundation, and had an upper roof-wall of brush. Twenty-four sites were identified, and sherd collections made. A report of this expedition is to be published soon.

Charles Amsden, Curator,
The Southwest Museum

Alabama Anthropological Society
American Museum of Natural History
Arizona State Museum

Alabama
Arizona, New Mexico, Utah
Arizona

Bureau of American Ethnology	See Smithsonian Institution
Columbia University	Georgia
Indiana Department of Conservation	Indiana
Indiana Historical Society	Indiana
Kentucky Geological Survey	Kentucky
Milwaukee Public Museum	Wisconsin
Museum of the American Indian, Heye Foundation	Nevada, New York, Canada
National Geographic Society	New Mexico
Nebraska State Historical Society	Nebraska
Ohio State Museum	Ohio
Peabody Museum, Harvard University	Arizona, New Mexico, Mexico
Phillips Academy, Andover	Georgia, New Mexico
Rochester Municipal Museum	New York
San Diego Museum	New Mexico
Smithsonian Institution	Alaska, New Mexico, South Carolina Tennessee, Texas, Utah, Washington
Southwest Museum	Arizona, New Mexico, Mexico
State Historical Society of Iowa	Iowa
Tulane University of Louisiana	Louisiana
Turney Museum	Arizona
United States National Museum	See Smithsonian Institution
University of California	California
University of Chicago	Illinois
University of Illinois	Illinois
University of Michigan	Michigan
University of South Dakota	South Dakota
University of Texas	Texas
University of Utah	Utah
Victoria Memorial Museum	Canada
West Texas Historical and Scientific Society	Texas
Wisconsin State Archaeological Society	Wisconsin
Wyoming Historical and Geological Society	Pennsylvania

CARL E. GUTHE, *Chairman*,

CENTRAL SECTION, AMERICAN ANTHROPOLOGICAL ASSOCIATION

The 1927 meeting of the Central Section of the American Anthropological Association convened in Chicago, March 25, at the Rosenwald Hall, University of Chicago. This was preceded by a meeting of state archaeologists, called by Dr. A. V. Kidder, held on the 24th and attended by members from states, west, east, and south.

The session was called to order by the President, Dr. Charles R. Keyes. The address of welcome was made by Professor Woodward, Vice-President of the University of Chicago, and responded to by President Keyes, who complimented the University of Chicago on

the advance made by it and its staff in anthropological work in the past few years.

A motion made by Charles E. Brown, Chief of Museum, Madison, Wisconsin, and seconded by Dr. Carl Guthe, of the Museum of Anthropology, Ann Arbor, Michigan, to grant the privilege of the floor to non-members of the Central Section was carried.

The opening number of the program, a discussion of "Publications of the Past Year on Archaeology, Anthropology, and Ethnology in the States included in the Central Section's Territory" brought out an extensive list. Regular publications as noted were:

The Wisconsin Archaeologist
The Ohio Archaeological and Historical Quarterly
Arrow Points, of Montgomery, Alabama

Illinois reported papers and other publications by Central Section members of that state as:

W. D. Strong, An Analysis of Southwestern Society. (AMERICAN ANTHROPOLOGIST.)

Walter Krogman, Aspects of Human Teeth and Dentition. (Journal of Dental Research.)

Charlotte Gower, The Origin and Spread of Antillean Culture.

Fay-Cooper Cole, The Nature of World and Man, containing a section on Primitive Man. (Published by the University of Chicago.)

W. D. Wallace, An Introduction to Anthropology. (New York: Harper Bros.)

W. D. Hambly, Origin of Education among Primitive People. (New York: Macmillan & Co.)

Texas reported:

J. E. Pearce, An Anthropological Diary. (Bulletin of the University of Texas.)

J. E. Pearce, Texas Archaeology. (Bulletin of the University of Texas.)

Alabama reported:

Folk Study of the American Negro.—and other papers.

Mississippi reported:

Calvin Brown, Archaeology of Mississippi. [This is an outstanding work of its class.]

Michigan reported:

W. B. Hinsdale, Primitive Man in Michigan. (Michigan Handbook, Series No. 1, of the University Museum, Univ. of Mich.)

W. B. Hinsdale, *Indian Trails and Waterways of Michigan*. (Michigan Academy, 1927.)

Emerson F. Greenman, *Mounds in Michigan with Special Reference to Two in Missaukee County*. (Michigan Academy, 1927.)

Ohio reported:

H. C. Shetrone, *The Exploration of the Hopewell Group*. (Ohio Archaeological and Historical Society.)

W. C. Mills, *Certain Mounds and Village Sites in Ohio*. (Ohio Archaeological and Historical Society.)

The first paper of the morning was by Dr. E. Sapir on "Secret Rituals among the Nootka Indians," in which he brought out the difficulty of securing the data, although they have a ritual for nearly everything.

In "The Teaching of Anthropology," Professor J. E. Pearce of the University of Texas, expressed as his observations that this study should not be left for college students alone, but should begin with the high school at least; or even farther back when the child becomes interested in man and his environment.

Miss Frances Dorrance, Curator of the Wyoming Historical and Geological Society, in her talk on "Preliminary Archaeological Survey of Eastern Pennsylvania," explained what was being attempted in the Keystone state. In March, 1924, the Society decided to undertake an archaeological survey of eastern Pennsylvania, limited to the Susquehanna watershed, which survey later was extended to include the entire state. The plan of work consists of a preliminary survey, now completed; and field work, to be based on the paper survey and search of records; and the publication of findings. The preliminary work brought information on 1,900 unexplored sites, some 450 offers of assistance, and the locating of 1,200 collections. Proceeding on the premise that it would require \$200,000 for five years work, state aid, to give the necessary authority in field work, to the amount of \$20,000, was asked from the legislature. The rest is expected to be raised among individuals, organizations, and other sources.

Peter A. Brannon, Director of the Department of Archives and History, Montgomery, Alabama, had for his subject, "Urn Burials in the Vicinity of Montgomery, Alabama, and Some Deductions Therefrom." He described methods of locating the burials, and what was usually found in each urn, based on the discovery of more than 500 burial vessels. Ear plugs and hair pins were among the unusual articles discovered.

A brief business session followed at which the chair appointed members of the various committees. The Auditing Committee was made up of Dr. Ellsworth Faris and Miss Charlotte D. Gower, both of the University of Chicago.

The Nominating Committee appointed consisted of Charles E. Brown, Madison, Wisconsin; E. Stevens, Kalamazoo, Michigan, and J. E. Pearce, Austin, Texas. On the Resolutions Committee were placed Carl Guthe, Ann Arbor, Michigan, W. C. McKern, Milwaukee, Wisconsin, and E. K. Putnam, Davenport, Iowa.

At the afternoon session, also held in Rosenwald Hall, H. C. Shetrone of the State Museum, Columbus, Ohio, gave a résumé of the archaeological work in Ohio in 1926, detailing the discoveries in the Seip mound, and other labors undertaken.

Dr. Charles R. Keyes, State Archaeologist of Iowa, gave a brief presentation of the discovery of "The Adel Grooved Axes," followed by a second paper on "A Village Site on the Big Sioux," with slides. Some burials at this site are found at a depth of seven feet.

Dr. Berthold Laufer, Field Museum, Chicago, read "Methods in the Study of Domestication." Domestication of animals in the past and even today was not, in many cases, for material purposes. Milk was not used by Chinese and other Asiatics, although they had cattle. Others raised sheep but did not use the wool; hogs, but did not eat the flesh; or chickens without utilizing the eggs. The ox was both a sacrificial and working animal. The fundamental use of domestication in eastern Asia was divination. The hoofs of the ox and horse were utilized in southwestern Asia, bones of animals in central Asia, the carapace of a turtle in China, and in Malaysia and elsewhere, the femur of a cock, was used in divination.

Charles E. Brown, Secretary of the Wisconsin Archaeological Society, told of "The Preservation of Indian Landmarks in Wisconsin." In the Badger State 500 mounds in 30 localities have been saved. At Madison 200, in 18 groups, are safe from destruction. The great destroyers of the present day are the tourist, with his thirst for a curio or memento, and waterpower development, which by ponding streams has hidden many a fine mound and village site.

E. J. Stevens, Secretary of the Michigan State Archaeological Society, described the "Michigan State Archaeological Survey." He gave the history of the work in Michigan, which until recently was negligible, and told of the organization of the Michigan Archaeological Society.

"Archaeological Work in Illinois under the University of Michigan," was Miss Charlotte D. Gower's topic. With maps and slides she detailed what had been accomplished the previous season. Three hundred and seventy-two mounds were found, of which 254 were previously unrecorded. These included a serpent mound and one large group which was excavated without startling results.

The visiting members and friends were tendered a dinner by the University of Chicago. This was served at the University Club, where the evening meeting was held.

The evening's program was under charge of Dr. A. V. Kidder, who spoke on "Modern Methods in Archaeological Research." By basic laws, which controlled man in the past and will in the future, mankind's history is being reconstructed. He discussed phases, particular to America, and told of a chronological sequence based on trade specimens, and of another based on dated Maya monuments.

Dr. Carl E. Guthe described his collecting work in the Philippines, and detailed the plans for the new museum of the University of Michigan. H. C. Shetrone, Curator of Archaeology, Ohio State Museum, Columbus, gave a brief sketch of plans for future archaeological work in Ohio. Dr. Fay-Cooper Cole, University of Chicago, spoke on the aid archaeology can and does offer to anthropology; the converse of the proposition he likewise held to be true.

The Treasurer reported a considerable sum in the Section's treasury. A committee consisting of Sapir, Cole, and Fox was appointed to recommend some plan of utilizing a part of this surplus.

The regular sessions on Saturday, the 26th, were held in the Field Museum of Natural History. The meeting was called to order at 9:30 A. M. by President Charles R. Keyes. Dr. Berthold Laufer, on behalf of the Field Museum, gave the introductory address. The first regular paper was presented by W. D. Strong, Assistant Curator, Department of Anthropology, Field Museum. His subject, "Petroglyphs of the Columbia River and Their Relation to Those of Adjacent States," was illustrated by an excellent collection of slides.

Frank W. Aldrich, Bloomington, Illinois, brought a large and valuable series of slides to illustrate his paper entitled, "Some Types of Cave and Rock Shelters in Western Europe."

Henry Field, Curator of Physical Anthropology, Field Museum, presented the results of the "Field Museum-Oxford University Expedition at Kish, Mesopotamia. Season of 1925-1926." This too, was well illustrated.

In "Prehistoric Chronology," A. T. Olmstead, Curator of the Oriental Museum, University of Illinois, Urbana, gave facts and other evidence that led him to give a dating to certain periods. The first Egyptian dynasties date back not more than 3,000 B. C. The first appearance of pottery may be set down as about the fifth millennium before Christ. The Neanderthals he dated as of 7,000 B. C.

W. D. Hambly, Assistant Curator, Department of Anthropology, Field Museum, gave the final paper of the morning. He discussed "Tattooing and its Significance."

The business meeting of the Section followed. On motion of Dr. Faris, seconded by Miss Gower, the reading of the minutes of the 1926 meeting were dispensed with.

The Secretary's report showed

Members, 1926.. . . .	72
Transferred to the Main Association . . .	1
<hr/>	
Total, 1926.. . . .	71
New active members for 1927.. . . .	8
New associate members for 1927.	8
<hr/>	
Total members, 1927	87

The Central Section in 1927 had 70 active and 17 associate members. The membership by states shows 29 living in Chicago and 5 in other parts of the state of Illinois. Wisconsin has 15 members, 9 from Milwaukee. Michigan has 10 members, Ohio 8, Tennessee and Iowa 3 each, and Nebraska and Missouri 2 each. The following states have 1 member each: Colorado, Texas, Arkansas, Minnesota, Mississippi, California, North Dakota, New York, Massachusetts, and Canada.

The Secretary reported 298 letters posted for the Section since the 1926 meeting.

The Treasurer's report showed

Cash as per the 1926 report... . .	\$142.67
Received annual Section dues	72.00
Gift of Dr. O. L. Schmidt	25.00
<hr/>	
Total	239.67
Expenses, stamps, and printing	24 35
<hr/>	
Balance	235.32
Check drawn but not cashed	22.00
<hr/>	
Cash, March 26	\$257 32

The Auditing Committee reported that they had examined the accounts and found them correct. On motion of Dr. Sapir, seconded by Dr. Cole, the reports of the Secretary-Treasurer were accepted and placed on file.

Dr. Sapir, Chairman of the Committee appointed by the President to suggest some method of utilizing the surplus funds of the Section, reported for the Committee. It was recommended that a sum, not to exceed \$200.00, be expended from the Section funds, the money to be used in publishing some paper on work in the Central Section's territory, or a paper by some member of the Central Section. Dr. Faris moved that the report of the Committee be adopted, and the Committee discharged. On being seconded by Dr. Laufer, the motion was carried.

In considering the meeting place for 1928 the claim of Nashville, Tennessee, was considered. P. A. Brannon invited the section to hold its next meeting at Montgomery, Alabama. On motion of Dr. Faris, seconded by Mr. Olmstead, it was declared the sense of the meeting that Nashville should be the place but that the final selection should be left in the hands of the Executive Committee.

The bill introduced in the 69th Congress through the efforts of P. E. Cox, of Franklin, Tennessee, was discussed. The resolution in regard to this bill, proposed by Dr. Faris and seconded by Dr. Cole, was passed.

Resolved: That the Central Section does heartily endorse the bill in Congress known as H. T. 16919, and known as "A bill to provide for co-operation by the Smithsonian Institution with state educational and scientific organizations in the United States for continuing ethnological researches on the American Indians"; and that we urge upon our representatives in Congress the adoption of this bill.

And be it further resolved that Mr. Cox be notified of the endorsement.

The following resolutions reported by the Resolutions Committee were unanimously adopted by the Section.

Resolved: (1) That the Central Section of the American Anthropological Association spread upon its minutes an expression of thanks to the University of Chicago and to the Field Museum, and their staffs, for the courtesies and hospitality extended to its members during the present annual meeting. The unusual opportunities afforded by personal contact with the educational and museum centers of anthropology in the middle west, in the halls in which the Central Section was organized five years ago, are deeply appreciated.

(2) That the Central Section of the American Anthropological Association record its serious apprehension of the increasing menace of vandalism

of aboriginal remains in the United States, and its approval of any reasonable steps taken by its members to educate the public with regard to the proper preservation and scientific investigation of aboriginal remains and monuments.

(3) That the Central Section of the American Anthropological Association express to Dr. O. L. Schmidt its appreciation for his friendly interest in the Section, and our thanks for the present gift and for the many gifts in the past.

The report of the Nominating Committee placed the names of the following members as officers for the Section.

For President, Dr. Fay-Cooper Cole, Chicago, Illinois.

For Vice-President, Dr. Carl E. Guthe, Ann Arbor, Michigan.

For Second Vice-President, Professor J. E. Pearce, Austin, Texas.

For Secretary-Treasurer, George R. Fox, Three Oaks, Michigan.

For members of the Executive Committee: Dr. Ellsworth Faris, Chicago, Illinois; H. C. Shetrone, Columbus, Ohio; Charles E. Brown, Madison, Wisconsin; Dr. Charles R. Keyes, Mount Vernon, Iowa; Peter A. Brannon, Montgomery, Alabama.

It was moved by Dr. Laufer and seconded by F. W. Aldrich, that the report be accepted and that the Secretary be instructed to cast a ballot for each of the persons named for the office to which he was nominated. The motion prevailed. The Secretary cast such ballots.

The afternoon session convened at 2:10 P.M. M. Bernstein of Chicago presented a paper on "Recent Investigations in Hair." By weighing fifty centimeters of hair, ten strands each, five centimeters long, on a fine balance, differences in hair weight between Negroids, Mongoloids, and Caucasoids were detected. Differences within the races of the Caucasoid group showed a progressive increase in hair weight from the Nordics to the Mediterraneans. There was an indicated sexual difference of eighteen percent in hair weight, the male hair being found heavier and coarser.

Differences in hair weight are due to three causes: (1) differences in quantity of pigment present; (2) presence or absence of air bubbles; (3) differences in area of cross sections, i.e., coarseness of the hair. The sexual differences seem to be due to the difference in area of cross-section.

The hairs on different parts of the scalp of the same individual are nearly identical, though an occasional variation is found. The structure of the hair-shaft is nearly uniform, as indicated by measurements and weighings of different sections of the same hair.

Dr. Ellsworth Faris, in "The Psychology of Magic," endeavored to discover whether magical processes were the result of rationalized

reasoning, or whether rationalized reasoning resulted from the practice of magical processes.

In explaining the "Tone System of Grebo, a West African Language," Dr. E. Sapir introduced C. G. Blooah, a native of the Kroo coast, who aptly illustrated Dr. Sapir's points by demonstrating the use of tones in his native language.

In "Primitive Music and Musical Instruments," K. Kennedy, Sydney, Australia, not only discussed the methods and music of primitives, but with specimens collected in various parts of the world, he played the common airs best adapted to each instrument. The instruments used included, from Australia, the one-tone stick, the musical boomerang, and the bull-roarer; from the Melanesian islands, pan-pipes (Solomons), flute of human bone, wood-flute, and shell trumpet (Maori of New Zealand), a drum and shell trumpet (Fijis). Among the African sources of music he showed the marimba and the steel guitar; also the one-string bow, the Zulu harp-bow, and the Basuto musical bow. From China he exhibited and demonstrated the moon-guitar, the flute, and the Chinese fiddle; from Russia he had the balalaika.

Henry Field of the Field Museum, in "An Interesting Skull from Patagonia," illustrated, gave the salient points of a primitive type of skull found on plains of the southern Argentine.

The members of the Section were entertained at dinner and for the evening by a smoker at the rooms of the Adventurers' Club.

GEORGE R. FOX,
Secretary-Treasurer

PROCEEDINGS OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION FOR THE YEAR ENDING, DECEMBER, 1927

The American Anthropological Association held its twenty-sixth annual meeting at Phillips Academy, Andover, Massachusetts, on December 28, 29 and 30, 1927, in conjunction with the American Folk-Lore Society.

Three Council meetings were held with President Saville in the chair.

COUNCIL MEETING, DECEMBER 28, 8:00 P.M.

The minutes of the Philadelphia meeting were read and approved.

REPORT OF THE TREASURER

Receipts

Balance on hand, December 8, 1926	\$2042 62
American Ethnological Society	\$ 772.50
Anthropological Society of Washington	195.00
Central States Branch	318.50
Annual membership dues of A. A. A.	
1924	\$ 6.00
1925	35.75
1926	211.01
1927	3056.85
1928	257.00
	3566.61
<hr/>	
Sale of publications	917.68
Reimbursements	1498.61
Interest	60.00
Miscellaneous	38.63
Special Memoirs fund	51.97
	<hr/>
	7419.50
	<hr/>
	\$9462.12

Disbursements

George Banta Publishing Company:	
Printing	\$3403.76
Postage	216.66
Storage	60.00
	<hr/>
	3680.42
Editor's expenses	587.65
Treasurer's expenses	682.50
Secretary's expenses	80.00
Reprints	392.57
Memoirs	1109.12
Purchase of back numbers	18.00
	<hr/>
	6550.26
	<hr/>
Cash on hand, Dec. 9, 1927	2911.86
	<hr/>
	\$9462.12

Resources

Cash on hand, December 8, 1927.....\$2911.86

Due from sales:

1926.....\$ 1.50

1927.....151.30

————— \$ 152.80

Due from dues:

1924 6.00

1925 6.00

1926 150.00

1927 424.00

————— 586.00

————— 738.80

————— \$3650.66

Liabilities

Membership dues for 1928 already paid\$ 257.00

Net excess resources over liabilities..... 3393.66

————— \$3650.66

Cost of Publications

AMERICAN ANTHROPOLOGIST, vol. 29, no. 1

Printing\$ 727.86

Distribution..... 23.75

Reprints 75.36

————— \$ 826.97

AMERICAN ANTHROPOLOGIST, vol. 29, no. 2

Printing 737.28

Distribution 35.48

Reprints..... 83.72

————— 856.48

AMERICAN ANTHROPOLOGIST, vol. 29, no. 3

Printing..... 1283.30

Distribution 35.68

Reprints..... 123.39

————— 1442.37

AMERICAN ANTHROPOLOGIST, vol. 29, no. 4

Printing..... 655.32

Distribution..... 44.58

Reprints 91.42

————— 791.32

MEMOIRS, Number 33.....	749.05	
Distribution	8.31	
	<hr/>	757.36
MEMOIRS, Number 34		
Printing.....	360.07	
	<hr/>	360.07
Total.....	<hr/>	\$5034.57
Reimbursements, American Anthropologist.....	389.49	
Reimbursements, Memoirs.....	1109.12	
	<hr/>	1498.61
		<hr/>
Net cost.....		\$3535.96

PERMANENT FUND

Receipts

Balance, December 8, 1926	\$1668.81
Interest on Savings Account, Jan. 1, 1927	\$ 24.26
Interest on Liberty Bonds (3), Apr. 9.	6.36
Interest on Liberty Bond (1), May 13	2.13
Interest on Savings Account, July 1, 1927.....	24.88
Interest on Liberty Bonds (3), Nov. 2, 1927 ..	6.39
Interest on Liberty Bond (1), Nov. 30, 1927...	2.12
Difference between cost and redemption price of 2nd Liberty Bond.....	2.97
	<hr/>
	69.11
	<hr/>
Total.....	\$1737.92

Investments

Liberty Bonds.....	\$291.09	
(FO3618566—4th)		
(GDOO93417—4th)		
(GO361856—4th)		
Treasury Saving Certificates.	60.00	
(QO309572)	<hr/>	351.09
(QO309573)		
(QO309574)		
Cash in Savings Account	1386.83	
	<hr/>	\$1737.92

The financial situation of the Association improved during 1927. As compared with December 8, 1926, the balances are as follows:

Permanent fund: 1926, \$1668.81; 1927, \$1737.92
Regular fund: 1926, \$2042.62; 1927, \$2911.86
Memoirs fund: 1926, nothing; 1927, \$51.97

The American Anthropologist for 1927 cost the Association \$3527.00 as against \$2722.00 for the 1926 volume. This increased cost is due to the addition of nine sixteen-page signatures and to the publication of many illustrations, most of which were paid for by the Association.

The Memoirs fund comes into existence through royalties received from the publisher of American Indian Life. The Memoirs are still being published through the generosity of friends of the Association. The annual income of the Association is sufficient to keep the American Anthropologist up to standard, but still insufficient to finance the Memoirs. Five hundred additional members would make possible the production of a Memoirs volume of six hundred pages per annum. The Treasurer suggests that the Council pass a resolution requesting each member to bring in at least one new member, and informing members that thereby a second annual volume of 600 pages can be supplied without any increase in dues. This resolution should be printed and mailed to each member.

The sanction of the Council is sought for the transfer of \$1000.00 from the regular fund to the permanent fund of the Association.

Respectfully submitted,

E. W. GIFFORD, *Treasurer*

REPORT OF THE EDITOR

The 1927 volume of the AMERICAN ANTHROPOLOGIST, with 751 pages, approached the figure of 1915, though still considerably behind the 822 page record of the last 20 years set in 1909. The increase was made possible partly by the regular budget appropriation, partly by a financial contribution for the publication of an article that had already been accepted.

At the time of writing the first issue of 1928 is being paged. There is still tremendous congestion, and a number of articles have had to remain unpublished for well over a year. Often long contributions set up months ago and destined for a special issue have to be eliminated for the time being on account of lack of space. The relevant

editorial correspondence should some time be published *in toto* as a human document of no mean psychological value. May the Editor once more point out that the circumstances dictating such postponement are generally beyond his control?

The Memoirs continue to be published by means of private subsidies. Number 34, Noel Morss's "Archaeological Explorations on the Middle Chinlee, 1925," was financed by the author: Number 35, "The Northern and Southern Affiliations of Antillean Culture," by Charlotte D. Gower—now paged—is being printed through a contribution by the Central Section of the American Anthropological Association. A large memoir by Dr. E. C. Parsons on "The Social Organization of the Tewa of New Mexico" has been received and will be prepared for the press in the immediate future. The series is evidently being kept alive, but its hand-to-mouth existence is most unsatisfactory. For example, the Editor had to decline a valuable archaeological paper because its length disqualified it as an article and there was no general Memoir fund to draw upon.

The ANTHROPOLOGIST naturally remains strongest in the field of American archaeology and ethnography. In the 1927 volume it has been possible to give some space to contributions on Asiatic prehistory and ethnography, and there is one article on an African ceremonial. There is a lamentable dearth of theoretical discussions. On the other hand, something has been achieved in establishing contacts with other branches of science by occasionally soliciting reviews from biologists, economists, sociologists, etc.

As regards the technical problems of editorial work, arrangements have recently been made that will, it is hoped, ensure a maximum of efficiency without additional expense to the Association.

Respectfully submitted,
ROBERT H. LOWIE, *Editor*

It was moved and carried that the above report be referred for special consideration to a committee appointed by the chair (F. Boas, F. W. Hodge).

REPORT OF BUDGET COMMITTEE
BUDGET FOR 1928

Secretary's expenses	\$100.00
Editor's expenses	600.00
Editor's assistant	\$480.00
Office expenses	120.00

Treasurer's expenses	700.00
Treasurer's assistant.....	480.00
Office expenses.....	220.00
American Anthropologist.....	4080.00
Printing (47 16-page sign).....	3000.00
Illustrations.....	400.00
Reprints.....	400.00
Storage of back nos.....	60.00
Postage	220.00
Reprinting back numbers.....	1000.00
Emergency Memoir expense	120.00
	<hr/>
	\$6600.00

(Signed) R. B. DIXON,
C. WISLER

It was moved and passed:

That a committee (E. W. Gifford, R. H. Lowie) with power to act be appointed to inquire into the number of missing issues of the "American Anthropologist," and to arrange for the reproduction of these issues by photostat so that complete volumes of the "Anthropologist" may be available for sale.

That a communication from the Museum of the Peaceful Arts asking us to appoint representatives be laid on the table.

That in response to a communication from the Social Science Research Council explaining the proposed project for establishing a "Journal of Social Science Abstracts," and requesting that three representatives be appointed on the Advisory Committee, that the Chair be empowered to appoint such a committee (R. F. Benedict, F. W. Hodge, T. Michelson).

That a committee of three be appointed to act as official delegates of the A. A. A. at the International Congress of Americanists to be held in New York, September, 1928 (F.-C. Cole, A. I. Hallowell, W. Hough).

The editor of the Encyclopedia of the Social Sciences, in a communication enclosing a report of the progress made to date, suggested that the constituent associations take some financial responsibility, if possible, for this project. It was moved and carried that a letter stressing cooperation and moral support be transmitted to the editor,

but also pointing out that the American Anthropological Association was not in a position to raise money for the encyclopedia. It was also suggested by the editor that the traveling expenses of official representatives of each association be defrayed in order that they might attend the meetings. It was moved and carried that this was impracticable in the case of our own representatives.

A letter from Dr. A. L. Kroeber was read, in which he called attention to the fact that in New York City there was an organization which was apparently dealing in semi-pornographic literature, which called itself the *American Anthropological Society*. Professor Kroeber expressed concern lest this organization be confused in the public mind with the American Anthropological Association. After some discussion as to practicable action it was moved and carried that this matter be laid on the table.

Dr. A. M. Tozzer spoke of a project under way which aims at providing a series of Source books on the history of the Sciences. He is in charge of the volume on anthropology and requested the endorsement of the Council. This was granted and Dr. Tozzer was empowered to select a non-official committee to work with him on the matter.

It was proposed by Dr. Boas that, in view of the financial support now being given by the various foundations having led to all sorts of scientific research, that the A. A. A. organize advisory committees on archaeology (H. J. Spinden), ethnology (F. Boas), physical anthropology (E. A. Hooton) and linguistics (E. Sapir), and advise these foundations that such committees stand ready to give advice on matters pertaining to research.

COUNCIL MEETING, DECEMBER 29, 9:30 A.M.

Dr. Leslie Spier drew attention to the situation in connection with the American Year Book, a commercial corporation. He suggested that the American Anthropological Association withdraw its official connection with this project. Dr. MacCurdy explained his connection with the Year Book, and stated that he had been appointed official representative a number of years ago, but that Dr. E. A. Hooton wrote the article in the last Year Book. Dr. MacCurdy asked that his resignation as a member of the Supervisory Board and as a contributor to the Year Book be accepted. This request was carried with regrets. The Chair was empowered to appoint a committee (A. V. Kidder, L. Spier) to look into the connection of other

organizations with the Year Book, and with power to act in respect to the whole matter.

A telegram was received from B. E. Livingston stating that the next meeting of the A. A. A. S. would be held in New York. It was moved and carried that the place of meeting of the A. A. A. be left to the discretion of the Executive Committee.

A telegram was received from Professor Horace Secrist requesting that three representatives of the A. A. A. be appointed to cooperate with similar committees from other sciences, acting under the auspices of the Committee on Scientific Method of the Social Science Research Council. A project is under way to select outstanding contributions in the several sciences suitable for case analysis from the standpoint of methodology. The Executive Committee was empowered to act on this matter after getting more details (R. H. Lowie, Chairman).

Dr. R. B. Dixon, as one of our representatives to the Social Science Research Council, made a brief report.

It was voted that the American Anthropological Association give its cordial support to the project of Miss A. E. White in exhibiting objects of Indian art in Paris, and appoint Dr. H. J. Spinden as its official advisor.

It was voted that a committee be appointed, consisting of Dr. Wissler as chairman (A. M. Tozzer, F. G. Speck) and to include the chairmen of departments engaged in teaching anthropology, to consider the question of approaching the Foundations for financial aid in supporting the field work for graduate students.

Dr. A. V. Kidder gave a brief report of his activities as retiring chairman of the Division of Psychology and Anthropology of the National Research Council. He gave particular emphasis to the State Survey Committee, studies proposed of the anthropology and psychology of the Negro, the establishment of a Museum and Laboratory of Anthropology at Sante Fé, the Committee on Child Development, and the index prepared of the "American Anthropologist." The printing of the latter is deferred until the completion of the next volume. It was voted by the Council to express to Dr. Kidder their appreciation of his energetic and efficient activities. There was a brief discussion in respect to the advisability of continuing the grouping of Psychology and Anthropology in the National Research Council. Dr. Kidder pointed out that several other Di-

visions contain representation from a number of sciences, and that it does not seem practicable to make a change at the present time.

COUNCIL MEETING, DECEMBER 29, 8:00 P.M.

It was moved and carried that a new Program Committee (P. E. Goddard, J. R. Swanton, and E. A. Hooton) be appointed. It was also voted that the following suggestions be carried out:

(1) that the entire first afternoon be devoted to a session of the Council,

(2) that the first session be made up of short papers of not more than ten minutes each in which methods and results be emphasized instead of data,

(3) that topics of Physical Anthropology be included in the program of the American Anthropological Association next year, since it does not seem wise to imply a dichotomy between physical anthropology and ethnology.

It was voted that a hundred extra copies of the "American Anthropologist," above the mailing list, be printed for each issue.

Dr. W. K. Moorehead discussed the present situation in connection with the administration of the Department of Indian Affairs due to the fact that an "Indian" has never been defined. He has been working over this problem and has solicited a number of definitions from various anthropologists. Some of these were read, and there was an informal discussion.

ANNUAL BUSINESS MEETING, DECEMBER 30, 9:30 A.M.

The following list of officers and representatives of the A. A. A. was presented by the Nominating Committee (J. M. Cooper, R. B. Dixon, A. E. Jenks, O. Ricketson, A. M. Tozzer), accepted by the Association, and duly elected.

President: M. H. Saville.

First Vice-President: A. V. Kidder (2 years).

Second Vice-President: Fay-Cooper Cole.

Secretary: A. Irving Hallowell.

Treasurer: E. W. Gifford.

Editor: R. H. Lowie.

Associate Editors: E. W. Gifford, F. G. Speck.

Executive Committee: N. M. Judd, J. A. Mason, Gladys Reichard.

Council (new members): T. Adamson, L. Bloomfield, R. L. Bunzel, B. Cosgrove, D. S. Davidson, H. Field, M. Jacobs, W. Jochelson, T. F. McIlwraith, G. G. MacCurdy, M. Mead, Mrs. O. Ricketson, G. Vaillant, A. Elizabeth White, L. A. White (1931).

Council: H. Bingham, E. W. Gifford, C. H. Hawes, D. Jenness, Rachael W. Lothrop, J. A. Mason, W. C. Mills, C. B. Moore, W. K. Moorehead, N. C. Nelson, C. Peabody, E. C. Parsons, E. K. Putnam, E. Sapir, F. H. Saville, M. H. Saville, H. I. Smith, H. Webster, C. C. Willoughby (1931); S. A. Barrett, M. W. Beckwith, R. Benedict, F. Blom, D. Cadzow, C. B. Davenport, E. S. Goldfrank, G. B. Grinnell, E. Gunther, A. I. Hollowell, M. J. Herskovits, A. E. Jenks, N. M. Judd, F. La Flesche, R. Linton, J. H. MacGregor, B. Oetteking, A. C. Parker, G. Reichard, R. J. Terry (1928); R. T. Aitken, C. M. Barbeau, R. B. Bean, S. B. Collins, B. Cummings, S. Hagar, G. G. Heye, E. A. Hooton, B. T. B. Hyde, A. B. Lewis, S. K. Lothrop, S. G. Morley, J. E. Pearce, F. G. Speck, L. Spier, H. J. Spinden, F. Starr, W. D. Wallis, H. N. Wardle, H. H. Wilder, H. Shapiro, H. W. Krieger, O. Ricketson, G. A. Dorsey, D. J. Morton (1929); G. Engerrand, W. Gates, P. E. Goddard, S. J. Guernsey, C. E. Guthe, H. U. Hall, E. S. Handy, C. L. Hay, J. P. Harrington, M. R. Harrington, L. W. Jenkins, A. V. Kidder, T. Michelson, W. F. Ogburn, B. F. Chappelle, J. B. Stetson, A. M. Tozzer, S. Trotter, E. P. Wilkins, W. Bradfield, E. H. Morris, T. W. Todd, F. H. H. Roberts, Jr., J. M. Cooper, W. K. Gregory, H. C. Shetrone (1930).

Representative to the Social Science Research Council: P. E. Goddard (to serve from April 1, 1928–April 1, 1931).

Representatives to the National Research Council: J. M. Cooper, J. A. Mason (to serve for three years from July 1, 1928).

Representatives to Section H, A. A. A. S.: H. J. Spinden, C. E. Guthe.

(The names of new members elected to the Association will appear in the forthcoming membership list which will be published in the *AMERICAN ANTHROPOLOGIST* for 1929).

The following resolutions were offered and passed:

(1) Be it resolved that, whereas, from the palaeontological and cultural data already at hand, gathered at the site and presented by competent experts at our annual meeting, December 28–30, 1927, the American Anthropological Association believes the Folsom, New Mexico, so-called "Bison quarry," holds most promising evidence in the disputed field of early man in America.

Because of this belief, the American Anthropological Association respectfully urges that a Quadrant covering this present unsurveyed site be undertaken at the earliest date by the U. S. Geological Survey in order to establish the geological age of the deposits in which these remains are found.

(2) Be it resolved that the American Anthropological Association express its appreciation and hearty thanks to the Principal and Board

of Trustees of Phillips Academy, and to Dr. W. K. Moorehead and Dr. A. V. Kidder for the cordial hospitality extended to them at Andover.

PROGRAM

Four general sessions of the A. A. A. were held. At the opening session the following papers were presented:

- Carleton S. Coon, Preliminary Report on the Rifians.
- Walter B. Cline, Preliminary Report on the Inhabitants of Siwâh Oasis.
- Leslie A. White, A Summary Report of Field Work at Acoma, N. M.
- V. J. Fewkes, New Phases of the Palaeolithic Cultures of Moravia, Czecho-Slovakia.
- W. K. Moorehead, Cooperation in America Archaeology.
- E. W. Gifford, Kingship and the Family in Western Polynesia.
- Ralph Linton, The Origins of Madagascar Culture.

The other meetings were devoted to symposia on the following subjects:

- (1) The Antiquity of Man in America. Chairman, R. B. Dixon.
 - Recent Finds near Folsom, N. M., F. H. H. Roberts.
 - The Archaeological Evidence as a Whole, N. C. Nelson.
 - The Evidence from Physical Types, H. L. Shapiro.
 - Geological Aspects, F. B. Loomis.
 - Palaeopathological Aspects, H. U. Williams.
- (2) Chronology and Culture-Sequence in America. Chairman, H. J. Spinden.
 1. The Archaic Civilization; Its Extent and Significance.
 - A Neo-archaic Classification. S. K. Lothrop, G. Vaillant.
 2. Extensions of the Maya Cultural Horizon. H. J. Spinden, A. V. Kidder, J. A. Mason.
 3. Cultural Succession in Peru. A. L. Kroeber.
- (3) The diffusion of Culture Traits. Chairman, Clark Wissler.
 - Diffusion in the Pacific Area, T. F. McIlwraith.
 - Diffusion in Archaeology, N. C. Nelson.
 - Diffusion in General, R. B. Dixon.

A. IRVING HALLOWELL, *Secretary*

DISCUSSION AND CORRESPONDENCE

IN RE JACOB'S CAVERN

Two entirely dissimilar modes of thought are manifest in Mr. Nelson's and my own discussion of the Jacob's Cavern finds (see *AMERICAN ANTHROPOLOGIST*, n.s., 30: 329, 1928). The results expressed in the Jacob's Cavern paper are the outcome of chemical, physical, and geological examination of the carved "mastodon" bone and the cavern deposits. Whether the conclusions reached are true or not is a minor consideration; they do not rest upon mere personal opinion. The methods employed are not inherently mysterious, they are described in detail so that they who wish may reproduce them or, if they are so constrained, draw other conclusions from the data presented.

There is little pertaining to the carved bone which an anthropologist or archaeologist is, by training, capable of handling. The effective approaches to this problem are indirect but susceptible of repetition by others possessing similar technique. Mr. Nelson's professed ability to discredit this "mastodon" bone is for this reason strongly questioned. He misconstrues the note at the back of the paper as an attempt to rehabilitate this carved bone; so far this bone has not required "rehabilitation"; it merely lacks extremely obvious and undisputed authenticity.

It is unfortunate that Mr. Nelson's careful labors in trenching Jacob's Cavern should have yielded such disappointing results but this is merely a part of the problem to be solved. His objections will again be answered in detail, however:

1. Admitted by all concerned.
2. The surviving bone was mineralized; this is shown by X-Ray photographs and specific gravity determination. Consider the possibility that the other carved bones and shell were not so preserved; they are reported to have disintegrated. The only other mineralized bone fragment so far found in this cavern was in the third layer.
3. Authorities pronounced the bone fragments from layer 3 as typical Late Pleistocene. Where does "Late Pleistocene" shade into "Recent"?
4. Why assume the bone to have been perforated for suspension? Also, is it not possible that at least one American type culture has escaped the notice of our diligent archaeologists?
5. The perforation in the carved bone can be attributed equally well to a tapered stone drill or a knife. In any case, the fabrication of such a perfora-

tion would be difficult after mineralization; such a bone would probably be well protected from accumulation of foreign substances while in use; it was probably mineralized during a long (relatively) period of disuse. Again, why assume that the carved bone was ever carried suspended from a cord?

6. Why assume that the carved bone was ever subject to much wear or abuse?

7. The field of American archaeology perhaps may not be considered to have been thoroughly covered. Moorehead and Peabody found no carved bones and also found no mineralized bone fragments in Jacob's Cavern.

8. The cross-section of the carved bone, as usual with most bones, is roughly elliptical and also, as usual with most bones, almost all the weathering cracks are on the more sharply curving parts of the ellipse. The unknown artist had the amazing forethought to place his carvings upon the flatter part of the ellipse—probably because of the greater ease of carving. This may be the reason that most of the weathering cracks “miss” the carvings.

9. The color of the artificial incision surface is very similar to the color of the bone surface itself in a recent carving upon an old bone. The outer part of a bone is somewhat different in composition from the inner part of a bone and the same amount of weathering would be expected to give different results with two differing substances.

10. The bone is mineralized and mineralization preserves a bone quite well. The great difficulty of carving a mineralized bone leads to the thought that possibly the “mastodon” bone was carved before the bone was mineralized.

11. A broad statement from any but an expert in the carving of bones with flint tools. I, an amateur carver, made fair copies of the “mastodon” upon both an old bone and a green bone and the edges of the carvings are fairly sharp, especially in the case of the green bone. I used flint points from Jacob's Cavern and employed the scraping method.

Favorably situated stalagmites accessible to the outside air with its seasonal variation in dust content record the dusty season as a darker layer and the wet (or less dusty season) as a lighter layer. Such layers are not due

to the fact that the early cave occupants were thoughtful enough to sprinkle some kitchen refuse on their calendar.

The great amount of “kitchen refuse” in the upper part of the stalagmite interferes with the deciphering of the annual layers. The bottom part of the stalagmite is too complex to yield easily to counting its annual layers; traces of a “splash cup” are seen,—evidence of a period of much greater rainfall than today. Careful inspection shows, however, that annual layers are present in the bottom part of the stalagmite. The absence of the opportunity to count these layers leads to their calculation in the best way possible. The photograph

of the enlarged layers on page 311 of the Jacob's Cavern paper shows some half dozen consecutive, quite uniform, layers—rather regular, sporadic rainfall records. The means employed in the attempt to synchronize the Jacob's Cavern stalagmite growth curve and the California redwood growth curve are on record, and they who disagree are free to bring forth contrary evidence if they possess such. In an estimate or calculation of this type with its obvious difficulties it is just as well to say "1213 years" as "about 12 centuries" or to say "730 B.C." as "about the 8th century B.C." It avoids cluttering up the main theme and enables its more complete grasp. Such a device antagonizes only those who are gun-shy of any but vague generalizations.

The third layer is evidenced visually, physically, and chemically. Whether it is a catch basin marginal to a central mound of occupation material is a conjecture, the truth of which will only be known after the complete excavation of the cavern deposits in the presence of men capable of recognizing such things. The second layer indicated absence of cavern occupation (by man or other animal) by the absence of decomposed bone material. This second layer appears to have been a red clay layer probably washed down into the cavern through the sink-hole originally responsible for the formation of the cavern; this layer is in such quantity as to indicate a considerable period of time for its deposition or accumulation. Therefore, if such were the case, whatever the origin of the third layer, it was deposited before a period of moisture-fall greater than that of today and preceding the deposition of the ash layer in the cavern. And such a rainy season or period has not since occurred to wash the ash layer over to the edges of the cavern. And also this third layer yielded a piece of mineralized bone,—the only other such fragment found in the cavern was the "mastodon" bone.

The presence of the reduced iron and relatively large phosphorus content of layers 1 and 3 and their absence in layers 2 and 4 may be safely attributed to animal remains. The statement that this chemical composition can doubtless be explained in other ways shows a complete and active unfamiliarity with such matters. The presence of fire-burnt rock fragments in this third layer, 7 meters back from the front of the cavern, is not evidence against human occupation.

It has been the reported experience of those digging in Pleistocene deposits that practically all bones preserved are, at the moment of

discovery, surprisingly well preserved. But were all Pleistocene bones preserved?

The anthropologist examines and interprets evidence bearing on his problems. The chemist and physicist not only examines and interprets such evidence but also records this evidence so that others may examine and interpret at their leisure.

Two of the set of three bones examined photographically and physically are of the Virginia deer and from the left front leg (consensus of opinion of a number of authorities). No fresh left front leg bones of the Virginia deer were available for the third bone. The two bones which I carved were not treated with "hard oil" before impregnation with paraffin because when the "mastodon" bone was melted out of the paraffin block (in which it was embedded after the other carved bones and shell had disintegrated) by the present writer, in the presence of Dr. Clark Wissler, the layer of "hard oil" peeled off with the hot paraffin; apparently it had not penetrated the "mastodon" bone very far,—because the "mastodon" bone was mineralized.

The fairly old bone (bone A, from the bottom of the ash layer) is of the same color, under several definite wave lengths of light, as the "mastodon" bone; they must have an approximately similar past history.

Bone A contains a recent carving upon an old bone. Yet the incision surface of this carving contrasts much less with its bone surface than does the carving on bone B and bone B is also old. The carving on bone B is thus obviously not a recent carving. Recent three-color process photographs of the three carved bones (Agfa Farbenplatten) confirms the panchromatic plate results.

Let us hope that eventually Jacob's Cavern will be completely excavated under competent supervision. This was largely the reason for the publication of the Jacob's Cavern paper.

VERNON C. ALLISON

This discussion would seem to have reached its natural end. Additional comment on my part would add little of importance. The student who will read Dr. Allison's original paper and my criticism should be able to draw his own conclusions. In my judgment the chemical test has not proved the engravings on the Jacob's Cavern bone to be ancient; but even if it had done so, all the circumstances surrounding the discovery of this bone are such as to warrant placing

it forever in the list of doubtful evidence. As to what concerns the stalagmite and the chronology Dr. Allison rears upon it, there seems to be nothing left to say except that neither science nor history has anything to gain by pretending to objective and numerical determinations which have no real foundation in fact.

N. C. NELSON

A DANISH CONTRIBUTION TOWARDS THE COMPREHENSION OF ESKIMO CULTURE

More than two hundred years ago Denmark began her great work of colonization in Greenland and, in the years which have gone by since the landing of Hans Egede in 1721, the population of the country has passed through a development from Stone Age people to a mixed Danish-Eskimo race under forms which have undoubtedly been unique anywhere in the world. Behind all this work lies the respect of the Danes for the national culture of the Eskimo; for simultaneously with the establishment of the trading stations and the development of practical occupations for the benefit of the future of the Eskimo, not only have scientists, but also zealous officials, employed under the Colony management, shown such great interest in the prosperity of this great Arctic colony that one may point with pride to a literature which, describing land and people, dates right back to the very first years. The scientific expeditions which travelled about and described Greenland and the Greenlanders must in no way be underrated; but it must be acknowledged that their road was very often opened for them by those men who, through generations, lived in the country and were sympathetic towards the problems which in turn arose.

The Commission for the Direction of the Geological and Geographical Explorations in Greenland, which by means of its imposing series of publications has brought Danish Arctic exploration to the knowledge of countries abroad, has now sent out a *Dictionary of the West Greenland Eskimo Language*,¹ compiled by the well-known Greenlandic lecturer, Schultz-Lorentzen, who has spent almost a lifetime in North and South Greenland as a minister and seminary principal. This dictionary, which is the first completely compiled dictionary of an Eskimo dialect ever translated into English, supplies a long-felt want and therefore may claim some further mention.

The *Dictionary of the West Greenland Eskimo Language* is a some-

¹ Published by C. A. Reitzel, Copenhagen, in 1927.

what revised edition of the Greenland dictionary published by the same author in Copenhagen in 1926, an extremely valuable and instructive work, the result of collaboration between Danes and Greenlanders, but particularly Danish ministers of religion who have placed their observations and collections of words at the disposal of the author, who has had valuable assistance in the person of the well-known Greenland minister and writer, Hother Ostermann. The preparatory work was commenced as far back as 1911 by the then lecturer in Greenlandic, Christian Rasmussen, in collaboration with the author.

Danish interest in the Eskimo language is of old date. As early as 1656 the first linguistic notes made their appearance, but it was not until 1750 that the first Greenland dictionary was published by Poul Egede. Schultz-Lorentzen's dictionary is the fourth of the series and, as the author says in his preface, is not only based upon the previous publications such as Fabricius in 1804, Kleinschmidt in 1851, and Chr. Rasmussen's Supplement in 1893, but much has also been taken from old and new Greenland literature. To one who, having a knowledge and love for the Greenland language, goes through the book, it gives nothing but pleasure to see the manner in which the living language is represented in this dictionary. To a most excellent degree the author has succeeded in raising his work above the usual dry listing of words and has, in the space allowed him, given a wealth of apt examples of colloquial speech.

The book, one of 300 pages of large format and got up in a beautiful and dignified manner, will undoubtedly become a very popular handbook in a short time, not only with foreigners who wish to familiarize themselves with the difficult Greenland dialects, but also with Greenlanders who feel a desire to learn foreign languages. Considering the rapid development of culture during the past half generation, the dictionary will certainly have its great and particular mission among the native population.

It is a special pleasure to the writer of these lines to draw attention to this interesting work. After almost twenty years' study of Eskimo culture in Greenland, it fell to my lot from 1921 to 1924 to lead the Fifth Thule Expedition, which carried us to the Canadian and to the American and Siberian Eskimo. No one can have a deeper respect than we Danes for all that we owe to explorers in these lands, a long list of weighty, sometimes pioneer names, which have helped to give vitally important contributions towards the understanding of one of

the world's most interesting peoples, the Eskimo, who live scattered over half the periphery of the world, right from the coasts of East Greenland to the regions round East Cape, west of the Bering Strait. The reason why we Danes have nevertheless ventured beyond our own domains is, first and foremost, that we have felt a desire to form an independent view of Eskimo culture as it is expressed in other parts of the world. And behind this desire is not only the interest in that which others did before us, but, perhaps more than anything else, love and respect for the bravest, the hardest, indeed the most admirable of all primitive hunter races.

A Dane who has devoted himself to Greenland and the Eskimo lays a whole life's work before English readers in this book. May the book therefore secure an interested and sympathetic reception abroad, and also encourage a continued, penetrating study of Eskimo life and Eskimo culture in the countries that bear the responsibility of the development and future of this people.

KNUD RASMUSSEN

ANTHROPOLOGICAL NOTES AND NEWS

AN ANNOUNCEMENT REGARDING THE NEW JOURNAL OF ABSTRACTS IN THE SOCIAL SCIENCES

The Social Science Research Council announces plans to establish a *Journal of Abstracts in the Social Sciences*. These plans are the result of five years' study by a committee of the Council which has canvassed the situation with respect to the needs, resources, and purposes to be served by a comprehensive abstract service in the social sciences.

A substantial subsidy has been provided for a period of ten years until the journal has become self-supporting through subscriptions.

In its report to the Council at Hanover, New Hampshire, in August, 1927, the Committee on Social Science Abstracts stated the need for abstracts in the following paragraphs:

"The founding of the Social Science Research Council is itself a recognition of the fact that leaders in the social sciences are convinced that research in these disciplines is greatly in need of stimulation and direction, and farther, that the scholars in these fields should be brought closer together for the consideration and solution of common problems. On the other hand, the deliberations of the Committee on Social Science Abstracts, and much of the information gathered by it, clearly bring out the fact that one great obstacle to the doing of truly scientific research in these fields lies in the tremendous mass of the materials to be considered and in the relative, if not quite complete, lack of appropriate tools for attacking it. There are so many books, pamphlets and reports constantly being published and so many periodicals both scientific and semi-scientific steadily pouring from printing houses both here and abroad, that it is physically impossible for any one to keep abreast of all the literature even in his own special field of work. For this reason also, and in making a courageous effort to read what he should, he is likely to take first the publications obviously in his own special field, and for lack of time to do more, to become increasingly oblivious of what is being done in other disciplines upon the same subjects. Thus artificial departmental lines tend to become sharper, and in his mind the social sciences stand as distinct and separate fields.

"To overcome these difficulties, a journal is proposed which will save an almost infinite amount of time and labor on the part of research workers, by giving them in one journal complete citations and

short but objective abstracts of all important new materials, and will at the same time draw together the several disciplines by serving them all through one journal based upon some systematic classification and improved by numerous cross-references to the materials in other fields. Other important advantages of such a publication could easily be stated. It will save much duplication and waste of effort, it will apprise the worker of the existence of other specialists working on his problems and stimulate correspondence between them, it will call attention to new methods of research, it will serve as a permanent record of the work already accomplished, and will in many other ways promote the healthy development of the sciences to which it relates."

The Social Science Research Council has appointed an Organizing Committee consisting of the following scholars, and charged with the responsibility of organizing and establishing *Social Science Abstracts*: Dr. Isaiah Bowman, American Geographical Society; Dr. Davis R. Dewey, Editor of the American Economic Review; Dr. Carlton Hayes, Professor of History, Columbia University; Dr. Frederic A. Ogg, Editor of the American Political Science Review; Dr. Frank A. Ross, Editor of the Journal of the American Statistical Association; Dr. Clark Wissler, Professor of Anthropology, Yale University; and Dr. F. Stuart Chapin, chairman, Professor of Sociology, University of Minnesota.

To assist the Organizing Committee, a number of advisory committees have been appointed in the fields of cultural anthropology, economics, history, human geography, political science, sociology, and statistics. These advisory committees have been asked to suggest: (1) the names of scholars who may be considered for the position of salaried editors and unsalaried consulting editors; (2) to draw up a scheme of classification adequate to the needs of the systematic grouping of materials from their respective fields of specialization within the social sciences.

Since the Council is made up of delegates from the national learned societies in the fields of anthropology, economics, history, political science, psychology, sociology, and statistics, the purposes of the Council in its efforts to further cooperative scientific research in the social sciences is best served by devoting *Social Science Abstracts* to the fields of cultural anthropology, history, human geography, political science, sociology, and statistics, broadly construed.

Social Science Abstracts will be issued monthly during the year and in each issue will appear systematic abstracts of new information

published in the fields indicated for the preceding month or months. *Social Science Abstracts* will be printed in English in this country, but it will attempt to cover the social science literature of the world as originally published in all languages.

Negotiations are under way to establish a satisfactory basis of cooperation with the Committee on Intellectual Cooperation of the League of Nations, in working out a modus operandi with the arrangements for economic abstracts undertaken by this international organization.

The test of published materials to be abstracted will in general be the criterion of *new information*, in the sense of important factual studies and contributions to theory and opinion, in the fields of the social sciences indicated. This will require the careful scrutiny of articles in periodicals, pamphlets, bulletins, monographs, and new books. It is conservatively estimated that the annual number of abstracts will run to fifteen or twenty thousand titles the first year. The abstracts will be cross-referenced and annual indexes published. It is hoped that the first number of *Social Science Abstracts* may be published within the present calendar year.

F. STUART CHAPIN,
Chairman of the Organizing Committee

SOCIAL SCIENCE RESEARCH COUNCIL

The Social Science Research Council announces the appointment of twenty-one Research Fellows for the year 1928-29. The fellowships are in the fields of anthropology, economics, human geography, political science, law, psychology, sociology, and history. Fourteen universities, from Oregon to Harvard, are represented by the Fellows selected, and the latter will gather their material from all parts of the globe. A geographer will study rural communities in Japan, an anthropologist will investigate the problem of adolescent and child psychology in a South Sea island; another the adjustment of individuals to society in a Pueblo village; a third anthropologist the background of Chicago immigrants in Sicily; a political scientist will study the problem of contemporary political leadership in the light of psychiatry and psychology; a psychologist is going to England and the Continent to study current work in the psychology of industry with particular reference to industrial morale.

The fellowships are granted to young American investigators, both men and women, of outstanding promise in the social sciences

All are under thirty-five years of age and have received the doctor's degree.

Following is the list of Fellows in Anthropology and their research problems:

Ruth L. Bunzel (Columbia University): "Social Adjustments in a Primitive Pueblo Community." Place of study: New Mexico.

Charlotte Day Gower (Institute for Juvenile Research, Chicago): "An Ethnological and Sociological Study of a Typical Sicilian Village Community as a Contribution to the Background of the Problem of the Sicilian Immigrant to the United States." Place of study: Sicily.

Margaret Mead (American Museum of Natural History): "The Mental Development of Young Children among a Primitive People." Place of study: Melanesia.

XXIII INTERNATIONAL CONGRESS OF AMERICANISTS

The XXIII Session of the International Congress of Americanists will be held in New York during the week beginning September 17th, 1928. The subjects which will be considered are the following:

1. The races of America and their relationship to other peoples.
2. The archaeological remains found in America and time relations as revealed by them.
3. The habits and customs of the various groups of American Indians and questions of the origin and distribution of these in the old and new worlds.
4. The native languages of America.
5. The early history of America, especially in regard to its discovery and early settlement.
6. Geographical and geological questions, especially as related to human activities.

The Congress will meet as a whole once each day to consider papers of general interest which will be communicated by eminent authorities. For the hearing of more special papers, which will be limited to twenty minutes each, the Congress will meet in sections. The titles of the papers and abstracts should be in the hands of the Secretary not later than June 1, so that a definite program may be arranged and mailed to members in advance of the meeting.

Individuals who wish to be enrolled as members or associate members are requested to mail applications for membership to George

G. Heye, Treasurer. Checks covering the membership fee may be enclosed with the application for membership.

Libraries and other institutions should become members if they wish to receive the report of the Session in which the papers read will be printed.

For the Committee of Organization	
FRANZ BOAS,	P. E. GODDARD,
<i>Chairman</i>	<i>Secretary</i>

A PREHISTORY CHART

Professor A. E. Jenks, of the Department of Anthropology at the University of Minnesota, has designed a chart illustrative of the chronological sequences of archaeological periods in prehistoric Europe and of typical artifacts of each period. The dimensions of this chart are three feet by four feet. The upper half is devoted to a chronological diagram of culture sequences in which the various glacial advances are represented by peaks and the interglacial periods by valleys. The associated cultures are distinguished by the varied colors of the different portions of this Pleistocene range. The several types of fossil man have their positions in the landscape indicated by guide posts.

The lower half of the chart shows drawings of characteristic implements of the successive periods, excellently delineated and clearly labelled. The selection of artifacts representative of the Palaeolithic periods is very good. Limitations of space prevent an equally satisfactory display of objects characteristic of the Neolithic, Bronze, and Early Iron Ages. Nearly all of those represented on the chart come from the Scandinavian area. But the author has chosen carefully and well.

Teachers of history and of prehistoric archaeology will find that Professor Jenks's chart is a valuable aid to themselves and to their students. Ten minutes' study of this chart will fix in the mind of the reader facts which ordinarily require for their absorption hours of concentration and much thumbing of leaves of text-books.—*Science*.

"AFRICA," A NEW JOURNAL

The International Institute of African Languages and Cultures, formally constituted in June, 1926, has sent us the first issue, January, 1928, of the new journal, "Africa," devoted to African ethnography and linguistics. The ethnological work will be under the direction

of Mr. Henri Labouret (Paris), while Professor Westermann (Berlin) is in charge of linguistics. Two series are contemplated by the Institute, in addition to the journal, one of them to contain monographs, the other to comprise texts written or dictated by Africans in their native tongue. Among the contributors to the first and future issues we note the names of: Karl Meinhof; E. M. von Hornbostel; J. H. Driberg; R. Sutherland Rattray; Paul Schebesta; Alice Werner; Edward Sapir; Winifred Hoernle. "Africa" is published by the Oxford University Press, the subscription being one £1 2s. It can be ordered from the publishers or the offices of the Institute, 22 Craven Street, London, W. C.

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ON THE EVENING of February 21st, at a meeting of the American Geographical Society of New York, the Charles P. Daly gold medal of the society was presented to Professor Alois Musil, of Charles University, Prague, in recognition of a lifetime devoted to explorations in northern Arabia and Mesopotamia and to historical researches relating to this part of the world.

Professor Musil has made an extremely important contribution to our knowledge of Bedouin folklore. Accepted as a member of the Rwala tribe, on equal terms with their head chief, he was enabled to study the life of these nomads in its minutest details. He records, translates, and explains several hundred of their songs in his volume, "The Manners and Customs of the Rwala Bedouins," to be published by the American Geographical Society in 1928.—*Science*.

MR. LESLIE A. WHITE, who recently received the doctor's degree in anthropology at the University of Chicago, is now teaching in the Department of Sociology and Anthropology at the University of Buffalo.

NEIL M. JUDD, curator of American archaeology, United States National Museum, returned to Washington on December 6, after six months' field work for the National Geographic Society at Pueblo Bonito, a prehistoric Indian village in northwestern New Mexico. The past summer marked the seventh and concluding season of the society's explorations at this most remarkable of all the pre-Hispanic pueblos of the southwest. Mr. Judd is now engaged upon preparation of his final reports to be published by the society.—*Science*.

THE SOCIÉTÉ DES AMÉRICANISTES DE BELGIQUE announces the publication in the near future of Paul Minnaert's "Les Institutions

et le Droit de l'Empire des Incas," to be published by Philippe Moens, 58, Rue Veydt, Brussels. The subscription price is to be \$3.00.

THE BOARD OF NATIONAL RESEARCH FELLOWSHIPS in the Biological Sciences announces the appointment of F. E. Clements in Anthropology.

DR. OYARTZUN, curator of the Anthropological Museum, Santiago, Chile, has been awarded the gold medal of the University of Würzburg.—*Science*.

A SERIES of four addresses on the general subject, "The Measurement of Mankind," were delivered under the auspices of the Minnesota chapter of the Society of the Sigma Xi. These lectures were as follows: February 16, "The Measurement of Man in the Mass," Professor J. Arthur Harris; March 7, "Body Growth in Infancy and Childhood," Professor R. E. Scammon; March 28, "Normal and Abnormal Human Types," Professor C. M. Jackson; and April 18, "Mental Development in Relation to Physical Development and Types," Professor D. G. Paterson.—*Science*.

AN ARCHAEOLOGICAL EXPEDITION sponsored by Captain Marshall Field has gone to British Honduras to seek new facts concerning the ancient culture of the Mayas and to collect material illustrating their civilization for exhibition in the Field Museum of Natural History. The expedition has for its leader J. Eric Thompson, assistant curator of Mexican and South American archaeology at the museum. Its center of operations will be Belize.—*Science*.

PROFESSOR MALINOWSKI, who was recently appointed to the chair of anthropology in the University of London, was the chief guest at a luncheon given at the Lyceum Club on January 28 by the Polish Circle.—*Science*.

DR. ALEŠ HRDLÍČKA, of the U. S. National Museum, Washington, D. C., lectured in Chicago on January 24, before the Chicago chapter of the Sigma Xi, on "The Glacial Age and its Relation to Man"; on January 25 and 26 at the University of Chicago, on "Origin and Evolution of Man in the Light of the Latest Knowledge" and "The Lessons of Human Evolution"; on January 27 before the downtown science group on "Human Evolution—Past, Present and Future."—*Science*.

MR. HARLAN I. SMITH was in British Columbia again last May, collecting from Indians, making motion pictures in southern British Columbia, and excavating shell-heaps on the north coast.

THE WÜRTTEMBERG VEREIN FÜR HANDELSGEOGRAPHIE UND FÖRDERUNG DEUTSCHER INTERESSEN IM AUSLANDE has recently published a pamphlet of annual reports for the period 1911-1926 (Strecker & Schröder, Stuttgart, 1927). It contains, in addition to the reports of activities, an obituary notice of Professor Koch-Grünberg and an article by Dr. F. Burger, entitled, *Beiträge zur Kenntnis der Völkerkunde der malaiischen Inseln*. This contribution contains a description of the author's collections in the Kei and Banda islands. The publication is well illustrated.

THE MUSEUM OF THE UNIVERSITY OF PENNSYLVANIA, in Philadelphia, has just been given a collection of Chinese art as a memorial to the late George Byron Gordon. Dr. Gordon had been connected with the University for many years and had been the director of the Museum from 1910 until his death last year.

A PAPER by Miss Frances Densmore on the music of the North American Indian was submitted at the sitting of the Academy of Athens, Greece, on March 22. This paper was written by Miss Densmore at the invitation of Professor Const. Maltezos, a member of the Academy.

AT THE ANNUAL MEETING of the National Academy of Sciences, held in Washington, D.C., on April 23, 24, and 25, 1928, the following papers of interest to anthropologists were read: *Traces of Prehistoric Man in Alaska*, by Ales Hrdlicka; *The Racial Factor in Basal Metabolism: A Study of Maya Indians in Yucatan*, by Francis G. Benedict and G. D. Williams, *Recent Discoveries Relating to the Tertiary Ancestry of Man*, by Henry Fairfield Osborn; *Discovery of Extraordinary Turquoise Mosaic in the Buried Temple at Chichen Itza, Yucatan*, by E. H. Morris; *A Study of the Brains of Three Scholars*, by H. H. Donaldson; and *The So-Called "Depth of Sleep,"* by H. M. Johnson.

DR. A. L. KROEBER of the University of California has been accorded the honor of membership in the National Academy of Sciences.

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SUMMARY REPORT OF FIELD WORK AT ACOMA

BY LESLIE A. WHITE

DATA for this report were secured at Acoma during the summer of 1926 and a portion of the summer following.¹

Limited time necessarily confines us to major points and general outlines of Acoma culture. Comparative references to other Keresan pueblos are based upon the published data for Laguna, Cochiti, and Zia, and upon my unpublished field notes for Santo Domingo, San Felipe, Sant' Ana, and Zia.

Acoma is the westernmost of the Keresan pueblos, lying about eighty miles west of Albuquerque. Acoma, together with Laguna, occupies a position about midway between the Tewan and Keresan villages of the Rio Grande, and Zuñi and the Hopi pueblos of the west. The western dialect of the Keres language, represented by Acoma and Laguna, may be understood only with some difficulty by the eastern section, comprising Santo Domingo, San Felipe, Sant' Ana, Cochiti, and Zia.

Acoma is the only one of the southwestern pueblos that has not changed its site since the arrival of the Spaniards in 1539. Within the past fifty or sixty years, however, two summervillages, Acomita and McCartys, have been established in a valley about twelve miles to the north, where they have irrigated farms. Here the bulk of the population, which numbers between six and seven hundred, lives for the greater part of the year. All important ceremonies, however, take place at Old Acoma, and everyone goes there for these occasions. Some of the families spend the winter at Old Acoma; others do not. But every family maintains a house at Old Acoma and at either Acomita or McCartys.

¹ This paper was read at the meeting of the American Anthropological Association at Andover, December 28, 1927. It has since been read by Dr. Elsie Clews Parsons, to whom the writer is deeply indebted for constant assistance, advice, and encouragement in his work in the Southwest.

There has been comparatively little contact with the whites, with whom they are very unfriendly, and very few inter-pueblo intermarriages have occurred. With Laguna, their closest neighbor, there have been unfriendly relations for many years.

Officers.—There are two classes of officers at Acoma. The first consists of the cacique, who is the chief *par excellence*, a war priest and two lieutenants, ten principales, ten “little chiefs,” and three cooks, who serve the war priests. These officers constitute the real authority and control of the pueblo; they are the keepers of the esoteric lore and paraphernalia, guardians of the old customs and traditions, and administrators and executors of the social life of the tribe. The second group consists of a governor, two lieutenant governors, three *Bickales* (Fiscales), and a water boss. This group might be considered as a secular arm of the first, and is of post-Spanish origin. The duties of the governor and his men are: supervision of roads and ditches, representation of the pueblo in dealings with the United States government and with white organizations, such as traders and churchmen, preservation of peace and order, etc. The cacique serves until death, when he is succeeded by an Antelope man chosen by his clansmen. The cacique appoints all other officers who serve for one year, except the principales, who hold office for life. The medicine societies, however, exercise the right of veto, and may substitute a man of their own choice for the one selected by the cacique. Acoma custom at this point resembles closely the Keresan pattern.

Acoma personnel differs from the eastern Keres, however, in the following respects:

- (1) At Acoma the cacique is always a member of the Antelope clan; this is not found in any other pueblo.
- (2) There are three war priests at Acoma; in the eastern villages there are only two, who represent the mythical war-god twins.
- (3) The three cooks who serve the Acoma war priests are not found at other Keresan villages.
- (4) The *g'owalcani*, who are the war priest's helpers on the Rio Grande, are not found at Acoma, although the ten “little chiefs” bear a rather close formal, but not functional, resemblance.
- (5) The group of *capitani*, who, on the Rio Grande, are the governor's helpers, are not found at Acoma.

Thus one sees a number of formal divergences at Acoma, but

on the whole the functions of the officers at Acoma resemble the eastern pueblos quite closely.

The clan at Acoma is primarily an exogamous kinship group; very few ceremonial functions are associated with clan organization. The cacique is always a member of the Antelope clan, which is regarded as more important than the other clans. And the Corn clan has a masked ceremony, which is given every five years. Formerly the Parrot and the Pumpkin clans led the salt-collecting expeditions. But here clan function in ceremonialism ceases. There is no relationship between the curing societies and particular clans, and all officers other than the cacique are selected without reference to clan affiliation. Clanspeople help each other at housebuildings and at harvest. And at Old Acoma, the houses are grouped somewhat according to clan.

The kachina cult.—Masked dances figure prominently at Acoma. There are about eighty *katsina* reported from this village, which is more than the number reported from any other Keresan pueblo, suggesting Zuñi influence. About twenty percent of these *katsina* live at Acoma (or near there) rather than at the mythical home of these spirits, Wenimats, which indicates considerable local elaboration of the cult. A number of these masks are obviously rather recent importations from Zuñi.

There are five kivas at Acoma instead of the two which prevail on the Rio Grande, or the six at Zuñi. (Bandelier reported six kivas at Acoma, but only five exist now.) With each kiva is associated a masked dancer group; all of the men and older boys in the pueblo belong to one or another of these kivas. A son joins the kiva of his father. There is a formal initiation of children, both boys and girls, at which time they are whipped by a *katsina* in the head estufa. In the Rio Grande villages there is no formal initiation—children are not whipped—and girls and women are kept in ignorance, theoretically, of the masked dancers. Acoma resembles the West, then, in the matter of initiation.

The system followed by the *kachina* organization at Acoma differs somewhat from the plan followed by the Rio Grande villages. At Acoma there is one big summer dance for rain at which time two kiva groups participate, one dancing two days and the

other the two days following. The dance is not preceded by a retreat by one of the medicine societies, which is rather anomalous, since this is the practice at the eastern pueblos. Among the eastern villages, too, only one kiva dances after a retreat. But there are usually several dances held during the summer for rain. At Acoma there is a great ceremony held at the time of the winter solstice, when many *katsina* dance in the "mixed" dance, or *G'aiya*. At this time, also, the *koBictaiya* come. The *koBictaiya* are spirits to whom all of the Keresan peoples pray. But it is only

Acoma that they are represented by masked dancers. Here also is to be found the most complete and detailed information concerning these spirits. At the eastern villages, informants invariably assert that the terms *k'atsina*, *shiwanna*, and *k'oBictaiya* are equivalent in meaning. In spite of this affirmation, however, a distinction is to be found in the use of these words. *K'atsina* and *shiwanna* are used interchangeably for the masked dancers and for the spirits which they represent. But *koBictaiya* is never used in this connection. The medicine societies have some little anthropomorphic stone figures which they use in their curing ceremonies which are called *koBictaiya*, but never *katsina* or *shiwanna*. Although the origin of this concept is quite obscure, Acoma gives us by far the most tangible and complete data regarding the *koBictaiya*.

At Acoma there are two masked ceremonies that are not found at any other Keresan village, but which resemble rather closely some Zuñi ceremonies (the *Kyanakwe* ceremony). One is a ceremony called *Gaiyabaitsani* ("katsina are going to fight us") which re-enacts the mythical battle between the first pueblo people and the *katsina*. The other is a ceremony belonging to the Corn clan, which features a boy, wearing only a mask, who enters the pueblo, accompanied by other masked beings, and lights several fires from a glowing torch that he carries. He also bears with him a jug of water and a piece of charred wood, both of which are divided and distributed among all the houses of the town. These dances are performed at intervals of five years. At Acoma, also, there are some masked personages called *G'omaio-wish*, which bear a very close resemblance to the *K'oyemshi* or

mudheads of Zuñi. They are called "scouts" and appear with the *k'atsina*. They are not found on the Rio Grande.

The medicine cult.—There are three medicine societies at Acoma, the Flint, Fire, and *kaBina*. It is said that there used to be many more, such as Giant, *Shiwanna*, Ant, *Shikameh*, etc.

In membership, theory of disease, ritual, and paraphernalia of curing, the Acoma curing societies resemble those of the other Keresan villages quite closely. Membership is open to both men and women and to children old enough to be entrusted with a secret. Members are recruited from patients who have been cured, although in recent years new members have frequently been impressed by "trespass." Disease is caused by witches (*kanad-yaiya*) who either inject such objects as sticks, thorns, stones, or even snakes into a person's body, or else steal his heart and make off with it. A witch is an evil spirit that may assume almost any form—an owl, a donkey, a cat, a *koshare*, or a human being, even a member of one's own family. Cure consists in removing the objects from the patient's body, which the medicine-men accomplish chiefly by sucking, although eagle wing-feathers are sometimes used. If the heart has been stolen, several medicine-men arm themselves and go out to wrest it from the witches. They nearly always have a severe struggle, in which doctors are not infrequently injured, but they always come back with the heart. The heart is a ball of rags, in the center of which is a kernel of corn—the patient's heart. If this is good, then the patient will recover; but if it is blemished, then the patient will die. The patient is given the heart to swallow in either case.

The medicine societies own or rent houses for their ceremonies. Paraphernalia consist first in a corn-ear fetish (the *mili* of Zuñi). This is an ear of corn covered with native cotton and strings of beads, and decked with parrot and eagle feathers. At Acoma it is called *honani* (which is the Hopi term for badger, an important medicine animal) but at other Keresan villages it is called *iarriko*. I cannot account for Acoma usage in this case. The *honani*, or *iarriko*, symbolizes the "mother of all the Indians," *Iatik*, and is to be regarded as the badge *par excellence* of the medicine-man. Each doctor receives one at the time of his initiation; at death

it is returned to the head-man of the society. Other items of paraphernalia are: medicine bowls made of pottery and decorated with cloud, rain, and lightning symbols, with bears, lions, and snakes; large flint knives, which are used by the doctors when they go out to fight witches; bear paws which are sometimes worn when a doctor massages a patient, and always worn by the doctors when they go out to fight witches; bear-claw necklaces and whistles of bear-bone are also worn; eagle wing-feathers are used to whip the disease away; a small quartz crystal is used in diagnosis; it gives a medicine man second sight and enables him to locate the injected objects in the patient's body or to locate a witch who might be lurking about; small stone figures of the animal medicine-men—the bear, mountain lion, badger, etc.,—and of Masewi and Oyoyewi (the twin war gods) and of Paiyatyamo. Curing ritual consists of singing, praying, smoking, and dancing; mixing of herb medicine in the bowls; sprinkling of patient, altar, and paraphernalia, doctors, and spectators with medicine water, shaken from the eagle plumes; diagnosing the patient with the rock crystal; massaging the patient with hands rubbed with ashes (ashes are used as a prophylactic against witches); sucking out the disease objects; whipping the sickness away with eagle feathers; administering medicine either internally or externally or both.

The medicine-men are always guarded by the war chiefs during curing ceremonies.

A rather significant difference in paraphernalia appears from a comparison of Acoma with the eastern villages: Acoma uses wooden slat altars in curing ceremonies which are called *yaBaicini*. Among the eastern Keres, a similar slat altar is used by the medicine societies at the solstice ceremonies and presumably during retreats, but they are not used in curing ceremonies. Moreover, they are called *aitcin* rather than *yaBaicini*. For curing ceremonies, the eastern Keres have a meal painting, which they call *yaBaicini*, upon which are laid out figures of animals, of Masewi and Oyoyewi (the twin war gods) of Paiyatyamo, of *koBictaiya*, etc. The reason for this difference is far from clear. The following hypothesis seems rather plausible. The use of the

slat altar by the Keresan medicine societies is a more recent acquisition than their other paraphernalia, otherwise it would be used in curing ceremonies, since treatment of disease is their first function. The slat altar might have been acquired, perhaps from Zuñi, at about the time that the kachina cult spread, for we find these two traits associated on the Rio Grande. But, since Acoma does not precede their summer masked dance by a retreat of a medicine society, they have there assimilated the slat altar to their curing paraphernalia and have extended the older term, *yaBaicini*, to include this new feature. But this explanation is little better than a guess; more data are needed at this point.

At Acoma, as at the other Keresan villages, there is a general curing ceremony, held in the late winter or early spring. At this time, every society holds an all-night meeting at the same time. Everyone in the village whether actually ill or potentially ill is cured, and "sickness" is whipped away from the houses. At Acoma the doctors cure the livestock, too, using their eagle wing-feathers to whip the disease away. Sometimes the medicine-men capture a witch which has human form, but not infrequently turns into a rat or a dog.

At Acoma the Fire society has rather elaborate ceremonies, held at the time of the initiation of a new member, in which the doctors play with fire and swallow swords. Acoma is especially conspicuous in this respect, again suggesting Zuñi influence. A great many feats of magic, sleight-of-hand, and hypnotism are practiced by medicine societies at times of ceremonies.

The *Koshare* (*Kachale*) society at Acoma is extinct, although there are two remaining members. It appears from the data, however, that they were closely affiliated with the *O'pi* or warriors' society, and were characterised by clown functions. But they were not affiliated with the Flint society, as is the case at San Felipe, Cochiti, and Santo Domingo, at least so far as membership was concerned. But the *Kachale* did use the house of the Flint society at the time of the scalp dance, indicating a certain degree of mutual intimacy.

Among the Rio Grande pueblos the *Quirena* society is the complement of the *Koshare*, according to the moiety feature

which prevails there. The term *Quirena* (*Guiraina*) is used at Acoma to designate all those men who have been initiated into the kachina organization, which is quite different from the well-defined group of the Rio Grande, where it is closely affiliated with the *Shikameh* curing society.

In former times there was an *O pi* or warriors' society at Acoma as well as at other Keresan pueblos. But since members were recruited from persons who had killed an enemy in battle, this society has ceased to exist. They used to have a house where they kept some paraphernalia, chief among which were scalps of slain enemies. These were washed at intervals and displayed in the *O pi* or scalp dances. The last of the old *O pi* at Acoma took all the scalps out to the hills and hid them as they did not feel that the younger men were quite qualified and competent to care for them. At Santo Domingo and at San Felipe, however, the scalps are still preserved, guarded constantly, and washed periodically. The *O pi* at Acoma figured prominently in the ceremony of the fight with the *katsina* as well as in the scalp dances. Since the *O pi* have become extinct it has become necessary to impersonate them in these ceremonies. This is done by the Flint medicine-men.

There was also a hunters' society, the *Caiyaik*, at Acoma in the old days. It was their duty to provide hunters with the proper medicines with which to take game. At communal rabbit hunts they themselves went out with their paraphernalia, the principal item being a small stone mountain lion, the most powerful of all beasts of prey. They made a meal altar on the ground, built a little fire, and prayed to the sun for help and success. But the *Caiyaik*, too, have ceased to be at Acoma.

The pantheon at Acoma, which includes *Iatik*, *Ocate* the Sun, the Earth, the Moon, the Morning and Evening Stars, the *k'ats'ina*, *Masewi* and *Oyoyewi*, *Paiyatamo*, the *koBictaiya*, etc., does not differ materially from the list of spirits at other pueblos. Likewise the general outlines of prayer ritual are similar: corn meal is sprinkled with prayers, food is offered at meal time, and prayer sticks are made and deposited on all important occasions. It has been quite impossible to secure complete data on prayer

sticks, however, even upon collections actually made, as one group is not familiar with the details of ritual of another. Little heaps of stones, or shrines, are common in the vicinity of Acoma as at other villages, and pictures of *katsina* are carved in the face of cliffs.

Summary - Notwithstanding many local differences, it has been possible to outline general principles of Keresan culture, to recognize a Keresan type, or pattern, to which all of the Keresan pueblos conform in varying degree. In my judgment, Santo Domingo corresponds most closely to this pattern. This village is the largest of the Keresan pueblos and has preserved more of the old culture than her neighbors. San Felipe comes next, and then Cochiti and Zia. Sant' Ana diverges rather widely for reasons not yet known. It is not possible to get an entirely satisfactory estimate of Laguna, owing to its advanced stage of disintegration, but there is no doubt that it diverged more widely from the type than, say, Cochiti or Zia.

Acoma is on the extreme western boundary of the Keresan area, greatly removed from its geographic center. Compared with Zuñi or Isleta, however, Acoma is emphatically Keresan in type. Nevertheless, there are a number of rather marked divergences, some of them indicating strong Zuñi influence. But this situation might well be expected, since Acoma lies about midway between the two areas, Acoma is closer to Zuñi than to Santo Domingo. The moiety feature, so pronounced in the east, is lacking at Acoma. The number of kivas, initiation into the kachina organization, the presence of the *Gomaiowish*, and a number of special kachina features strongly suggest Zuñi influence, as well as the feats of jugglery of the curing societies. Then, too, there seem to be some local, typically Acoma, features, such as the three cooks of the war chiefs, the Antelope clan control of the caciqueship, and the impersonation of the *koBictaiya*. This also is not surprising in view of their comparative isolation from other Keresan pueblos; they were compelled to develop, to some extent, upon their own resources. This is again manifest in the rather large number of local *k'ats'ina*, which in turn was

made possible by their unequaled length of residence at their present site.

I felt for a time, after becoming acquainted with Santo Domingo and San Felipe, that they had preserved more of the old culture than had Acoma, which was rather surprising, for the Acoma are second to none in surliness and secrecy. But this difference now appears to be more apparent than real. Acoma probably never had certain of the Rio Grande characteristics, such as the *Quirena* society, whose existence is there enforced by the moiety principle, which is basic. The eastern association of the *Koshare* with the Flint society, which is not found at Acoma, has also tended to preserve the *Koshare* along the Rio Grande while it has disappeared in the west. Then, too, ceremonialism has been preserved upon a higher level in the east due to the stimulation of nearby pueblos. Acoma, being more isolated, has not been spurred to exert herself in competitive exhibitions. The fiesta dances, which are open to the public, for example, are conducted with greater regard for correct costume and skilled execution in the east than at Acoma.

One might summarize the cultural position of Acoma, then, as follows: Acoma occupies a position marginal both to the Rio Grande region and to Zuñi, although it belongs very definitely to the Keresan pattern. Its conformity, however, is somewhat diluted because of its distance. Being close to Zuñi it shows marked evidence of western influence. Its comparative isolation has facilitated local developments and has made it easier to avoid disintegrating influences of the whites. But, on the other hand, its remoteness from the Keresan area center has kept it from acquiring some prominent Keresan features. And its isolation has, through lack of invigorating competition, allowed some aspects of ceremonialism to degenerate.

UNIVERSITY OF BUFFALO, BUFFALO MUSEUM OF SCIENCE,
NEW YORK

NORSE RUINS IN LABRADOR?

By THERKEL MATHIASSEN

AGAIN and again it is mentioned by authors and travellers that on the Atlantic coast of Labrador are ruins from a colonization of the old Norsemen, who from the 11th to the 15th century lived in West Greenland. And a thing may be repeated so often that it is regarded as a fact. We will now try to point out if there is any basis for such a supposition.

We can answer this question in three ways. By *history*: Have we in the Sagas any evidence of a colonization in Labrador? By *folklore*: Have the recent Labrador Eskimo any traditions or tales concerning a Norse population? And finally by *archaeology*: Have we ruins or other relics from Norsemen in Labrador?

That the Norsemen, who for four or five centuries had the two prosperous settlements in southern West Greenland, were acquainted with Labrador is beyond doubt. They were clever sailors, not afraid of long voyages. That Labrador is identical with Helluland of the Sagas is now accepted by most authorities; both position and geography make this suggestion natural.

Helluland seems to have been discovered by Leif on his famous voyage to Vinland, year 1000 A.D. In "*Gränlendinga þattr*," in the very much disputed "*Flatey book*," it is said:

They sailed to the land, anchored, put out the boat, and went ashore. No grass grew there, and great glaciers were seen inland, while the coast between the glaciers and the sea looked like one large, flat stone, and this land did not seem to them to have any value.

In the *Saga of Erik the Red* it is told that it was Thorfinn Karlsefni who on his Vinland voyage discovered Helluland (this voyage is supposed to have taken place in 1003-6).

They sailed first to the Western Settlement and from there to Bjarneyär. Thence they bore away southward two days,¹ where they saw land, and yet put out the boat, and explored the land, and found there large flat stones, many of which were twelve ells wide. There were many Arctic foxes there. They called the land Helluland (land of flat stones).

¹ Finnur Jónsson thinks that these two days are a mistake for five days.

Whoever is the discoverer of Labrador, it is certain enough that the Norsemen on their voyages to Vinland visited the coast of Labrador; but these visits seem only to have been very short and have hardly left any ruins. Another point is this: Even if Norsemen hunters or fishermen on hunting voyages settled for longer or shorter periods on the Labrador coast, this being rich in seals and fish, this barren land certainly is not tempting for cattle and sheep breeders. But the Sagas do not contain anything about such a colonization.

By way of history we are not able to solve the question. What about folklore and archaeology?

H. Rink was the first to mention the Eskimo tales about Tunnit, his informants being Moravian missionaries on the Labrador coast:

Our ancestors and the tunnit in days of yore lived together; but the tunnit fled from fear of our people who used to drill holes in their foreheads while yet alive. With this view they moved from here to the north, crossing over to Killinek (Cape Chidley). While dwelling among us they had sealskins with the blubber attached for bed robes. Their clothes were made in the same way. Their weapons were formed of slate and hornstone, and their drills of crystal. They were strong and formidable, especially one of them, called by the name of Jauranat, from which is formed javiniarpok (it is terrible). Huge blocks of stones are still to be seen which they were able to move. Some ruins of their houses are also to be found here and there in our country, chiefly upon the island, having been built of stones, and differing from the abodes of our people. One of our ancestors when kayaking had a tunnek for his companion, who had a bird spear, the points of which were made of walrus-tooth.²

Dr. Rink comments upon this tradition, that the missionaries usually regarded these "Tunnit" as "Greenlanders," while "Tornit" in Greenland are regarded as "inlanders." He continues:

It is not impossible that these tales are derived from vague reminiscences of people of European origin dwelling in the distant past in North America.³

W. G. Gosling⁴ in his book "Labrador" mentions these tales for the benefit of his theory of a Norse colonization in Labrador; and besides he has collected archaeological evidence. In the

² H. Rink, *Fskimouske Eventyr og Sagn*, 328. Kobenhavn, 1866.

³ *Op. cit.*, 367.

⁴ *Labrador*, 11. London, 1911.

reports of the missionaries he has found several notes concerning ruins, differing from the ordinary Eskimo remains. Brother Lundberg tells in 1831 about ruins on islands at Nain, that they are built of stones, which the Eskimo never use. The brothers Kohlmeister and Kmock in 1811 found Greenland houses on Amitok island at 59°30' N. latitude: "Remains of walls and graves with a low stone enclosure round the tomb." The bishop of Labrador, Martin, showed pictures of the Norse ruins in Greenland to the Eskimo, and these compared them with the Tunnit ruins.

W. Thalbitzer⁵ also discusses the Tunnit legends from Labrador and mentions three possibilities, Indians, Norsemen, and strange Eskimo, without coming to any decision.

W. Hovgaard⁶ mentions Boas' "Tornit Tales from Baffin Land" for the benefit of a theory (finding support in F. Nansen's *In Northern Mists*) that the Norsemen from Greenland after the destruction of the settlements went over to the American side of Davis strait, and he says about the Tunnit ruins

that the present Eskimo on Labrador show no respect for the dead and would not construct such burial places; they also disclaim all responsibility for the houses.⁷

Hovgaard also mentions some erections, built of flat slabs of stone, on the summit of lofty cliffs, recently discovered by Dr. Grenfell.

E. W. Hawkes⁸ in his book on "The Labrador Eskimo" also discusses the Tunnit legends, and he gives much further information concerning this mysterious people. The Tunnit were very big and strong, but stupid, and fell an easy prey to the Eskimo. In the winter they dressed in untanned deerskins. They did not know how to manufacture waterproof boots; they took a long strip of sealskin with the hair on, and wrapped it around the feet, starting at the toes. For a sole they would take a flat, square piece of skin, cut holes around the edge, weave it up with a draw-

⁵ The Ammassalik Eskimo. Meddelelser om Grönland, 39: 688, 1914.

⁶ The Voyages of the Norsemen to America, 45. New York, 1915.

⁷ Op. cit., 202.

⁸ The Labrador Eskimo. Geol. Surv., Anthropol. Series, 14: 143, 1916. Ottawa.

string, and tie it around the ankles. Their houses were built on an exposed shore, showing that they had little knowledge of the use of boats; these they stole from the Eskimo. The houses were built of heavy rocks for walls, and whale ribs and shoulder blades for the roofs. They used harpoons with heads of bone and ivory with flint blades; their lances had also flint points and were thrown with throwing-sticks. Bows and arrows were not used, but deer were hunted by erecting long lines of stone "men" in the valleys. Their drills were of crystal and their women's knives were of slate without a handle. They had large lamps for cooking and smaller travelling lamps. Tunnit and Eskimo lived for a long time amicably side by side, but quarrels arose and Tunnit were exterminated. Near Nachvak have been found some thirty Tunnit graves with stone pots, harpoons, and stone knives; even the remains of the boats are there and also remains of bows and arrows. The bows were of whalebone (baleen).

In opposition to the previous authors, Hawkes regards Tunnit as a foreign Eskimo tribe whom the Labrador Eskimo came into contact with.⁹

G. M. Gathorne-Hardy, having previously studied the old Norse voyages and written a book on the subject,¹⁰ went in 1921 to Labrador to make a close examination of the Tunnit ruins.¹¹ Having mentioned the arguments of Rink and Gosling and the Tunnit legends he comes to the archaeological results of his journey: There is a contrast between the ruins of the Tunnit and of the Eskimo. The latter are situated back from the open sea. The ruins of the winter houses are oval, of turf, and the tent rings are of small disconnected stones; the graves are of stones, often with a separate room for the grave goods. The implements found in these Eskimo ruins are of quartz and flint, with a few exceptions unground, and of bone and ivory. In contrast to these Eskimo ruins the Tunnit remains are always situated on islands, difficult of access for small boats, and nearly always on the

⁹ Hawkes, *op. cit.*, 147-48.

¹⁰ *The Norse Discoverers of America*. Oxford, 1921.

¹¹ *A Recent Journey to Northern Labrador*. *Geog. Journ.*, 59, no. 3, 1922.

most exposed side of this island. Often the ruins are situated on very rocky ground

even though far more attractive camping sites existed in the immediate neighborhood.

The ruins are tent rings built of large stones in close contact; then a number of structures regarded as shelters or houses.

A large specimen measured 17 feet 6 inches by 10 feet, another 15 feet by 9 feet 6 inches internally; most were somewhat smaller. Many are of a strictly rectangular plan. The floors had been levelled by clearing away the large stones. The walls seen were about two feet high, and did not appear ever to have been much higher.

In no case was there a trace of any doorway. An Eskimo told of a building near Port Manvers, 4 feet 6 inches high.

From Turnavik island near Makkovik Gathorne-Hardy describes a curious breastwork, a 30-feet long stone wall with a wide opening in the middle, situated too far from the shore to be a hunting blind. A grave built of unusually big stones was also supposed to be a Tunnit grave. Tunnit ruins are mentioned from seven islands in the environs of Nain alone.

Gathorne-Hardy did not find any implements in the ruins himself, but from the Eskimo he received some specimens from Tunnit graves; these were different from the Eskimo antiquities, being of ground slate and still harder stone.

He concludes:

What then are the data? A people, Eskimo-like, but regarded as alien; seamen, but ultimately without boats; dressed like savages in skins, which, unlike savages, they could not clean or prepare properly. There was blubber on the skins. Their weapons, though of stone, differed apparently from the local culture, and were of a type usually associated in Greenland, where it occurs with some knowledge of metal prototypes. Finally a race physically bigger and stronger, but numerically weaker, than the surrounding Eskimo. It is a widely accepted theory, adopted by Dr. Nansen, that the Norse colony of Greenland was ultimately fused by neglect and hard times with the Eskimo civilization. Any part of it which survived must necessarily have undergone this change, since as Norsemen its members disappeared. Here you have a race, largely Eskimoized, but not Eskimo, accustomed to sea voyages, and most probably with some knowledge of the western side of the Atlantic.

Quite recently still more communications of Norse ruins on the Labrador coast have been published. Several times D. Mac-

Millan, the leader of the Field Museum Expedition to Labrador, has in newspapers told about such ruins, an interpretation which, however, does not seem to be acknowledged by the anthropologist of the expedition, Dr. W. D. Strong.¹² And in the report of the Putnam Baffin Land Expedition¹³ still more Norse ruins in Labrador are reported: On Sculpin and other islands in the vicinity of Nain ruins were visited reputed to be of Norse origin. On a small islet, only about one mile in each direction, were eleven structures of stone. The dimensions of a typical larger structure was 12 by 18 feet, oblong in shape; the walls were of flat stones, about 18 inches thick and with a maximum height of three feet; one of the buildings had a doorway. No implements were found. The Reverend Hettisch in Nain told that the Eskimo thought these ruins were built by a strange people. The archaeologist of the expedition, D. A. Cadzow,¹⁴ also mentions these ruins, "alleged to be of Norse ruins," and describes them as irregularly oblong.

The largest is 23 feet 8 inches long on the west side, 22 feet 8 inches on the east, 11 feet 5 inches on the south, and 8 feet 6 inches on the north, where there is a well-defined doorway.

Thus we have come to the end of the information which literature can give us concerning this question. We will now turn to a critical review of these reports and see if they give sufficient support for a theory of a Norse colonization on the Labrador coast.

First the Tunnit legends:

When we remove from these legends all the fantastic and supernatural elements which have accumulated in course of time and very easily become attached to a strange people, there is still a remnant of positive information left concerning the Tunnit people. They had houses of stone and whalebone, stone graves, lamps and cooking pots of stone, harpoons and lances with ground stone blades, throwing-sticks, and bird darts; they hunted deer by way of stone rows, used stone knives, crystal drills, and

¹² Amer. Anthr., n.s., 30: 173, 1928.

¹³ George Palmer Putnam in the Geographical Review, January, 1928.

¹⁴ Archaeological Work with the Putnam Baffin Island Expedition. Mus. Amer. Ind., Heye Found., Ind. Notes, 5: 99, 1928.

women's knives of slate without a handle; their clothing was of untanned caribou and seal skin, and their footgear was a sandal, not attached to the leg of the boot. Boats, bows, and arrows are usually not ascribed to the Tunnit; but on one occasion they are mentioned, and the bow was then of baleen.

Do these features confirm the theories of the Norse origin of the Tunnit legends? Certainly not. On the contrary they state with great certainty that the Tunnit are Eskimo. All the culture traits are purely Eskimoic; even if they are not all familiar to the recent Labrador Eskimo, then they are well known from other Eskimo cultures and particularly from the old Thule culture,¹⁵ now lacking in the Central Eskimo area. All the Tunnits' culture traits are known from the Thule culture, and some of them, the whalebone house, stone grave, baleen bow, and women's knife without a handle, belong to the representative types of this culture. The poor skin-tanning seems also to be characteristic of the Thule culture; and the Tunnit boot, with the loose sandal, seems to be an earlier stage of the boot with two pairs of loops for the string, found in a Thule ruin in Baffin Land,¹⁶ supporting Hatt's¹⁷ theory on the Eskimo boot as a connection between a loose sandal and a stocking.

In the Labrador Tunnit legends we consequently do not find any support for the existence of Norse settlements in Labrador. And if we regard conditions outside Labrador it is still more evident that Tunnit cannot be Norsemen, a question I recently have discussed.¹⁸ For the entire Central Eskimo territory from Davis strait to Coronation gulf these Tunnit (Tunit-Tornit) legends are known, always attached to the ruins of the old, disappeared Thule culture, an Eskimo culture, originating from Alaska and mainly depending on whaling and walrus hunting. The Labrador Eskimo have preserved more of the Thule culture

¹⁵ Therkel Mathiasen, *Archaeology of the Central Eskimos*. Rep. Fifth Thule Exped., 4, nos. 1, 2. Copenhagen, 1927.

¹⁶ Mathiasen, *op. cit.*, no. 1, pl. 56.

¹⁷ Gudmund Hatt, *Moccasins and their Relation to other Arctic Footwear*. Mem. Amer. Anthr. Assoc., 3: 202, 1912.

¹⁸ Mathiasen, *op. cit.*, 4: 186-90 (no. 2).

than the more western Central Eskimo tribes, but still their culture has changed much since the days of the Thule culture. The tradition, that the Labrador Tunnit fled to the north, is probably transplanted from the central region, from where the Thule people went to the north and peopled Greenland and the Arctic archipelago.

With Norsemen these Tunnit have nothing to do. Gathorne-Hardy in support of his theory that they were Eskimoized Norsemen from Greenland mentions their ground slate implements; but it must be realized that ground slate implements were very common in the Thule culture and furthermore are not, as Solberg supposed, derived from prototypes of European metal technique.¹⁹

Then the ruins:

In summarizing the descriptions of Gosling, Gathorne-Hardy, Putnam, and Cadzow, the supposed Norse remains have the following features:

1. Situated on islands, usually on the most exposed side.
2. Built of stones, often very heavy stones, in contrast to the Eskimo turf houses. The ruins belong to the following types:
3. Strong tent rings, built of heavy stones without interval.
4. Large oblong stone erections, ordinary size 6 by 4 m.; the walls up to 1 m. high and seem never to have been higher.
5. Meat caches, built of heavy stones.
6. Graves, built of big stones.
7. Rows of small stone pillars.
8. The curious breastwork, situated too far from the sea to be a hunting blind.

What do these different features, as enumerated above, mean?

1. The situation on islands, and on the most exposed side of the island, indicates that they are summer encampments for hunting in open water; whale bones show that whaling has been pursued, and whaling places have of course to be situated close to the open sea. It is a situation very common for Eskimo summer camp sites.

2. That the ruins are stone-built is no evidence against their Eskimo origin. The Eskimo erect many kinds of stone structures

¹⁹ This is discussed, Mathiassen, *op. cit.*, 4: 74 (no. 2).

—houses, fox traps, kayak supports, etc. The supposed contrast between the Eskimo turf houses and Tunnit stone buildings must be explained as the difference between the winter settlements with their half-underground turf houses, not situated on the open shore, and the summer camping grounds with their stone erections on islands and skerries.

3. The strong tent rings are, as I have shown elsewhere,²⁰ connected with the old Thule culture.

4. It is most probably the large square stone erections in particular which have been the basis of the Norse theory. What is the meaning of these oblong, low stone structures? As houses the walls seem to be too low, and they never seem to have been higher. The interior is smooth and cleared of stones, consequently without remains of a broken-down roof. Quite similar stone buildings I have seen in several places on Melville peninsula. From Cape Welcome near Naŭjan in Repulse bay I have described one.²¹ It is an irregular square building of heavy stones, 4–5 m. square, the maximum height of the walls being 1 m. By the local Eskimo it is regarded as a festival place, where eating, dancing, and feasting took place on days of good hunting; possibly it is a remnant of the square dancing house of the Alaska Eskimo. Similar structures I have seen on the neighboring Tent island (5 x 6 m., the walls' maximum height being 1½ m.), and on the islands Ugli and Jglulik.²² These festival places are all of them situated on the summer camping sites.

5, 6. Meat caches and graves, built of heavy stones, are found in great numbers around the village sites of the Thule culture.²³

7. Rows of stone pillars are also known from the summer sites of the Thule culture²⁴; probably they may have been used for suspending drying seal lines.

In every respect these Tunnit sites seem to be similar to the summer encampments of the Thule culture on Melville

²⁰ Op. cit., 4: 129 (no. 2).

²¹ Op. cit., 4: 101 (no. 1).

²² Op. cit., 4: 118, 123 (no. 1).

²³ See for instance at Naŭjan, Mathiassen, op. cit., 4: 8, 90 (no. 1).

²⁴ From the island Simiutaq, Mathiassen, op. cit., 4: 100 (no. 1).

peninsula. Most striking is the resemblance to the summer camps outside the large winter settlement Naŭjan in Repulse bay. On C. Welcome and the island Simiutaq are located the summer places connected with the winter place Naŭjan with its half underground whalebone houses. The site on C. Welcome²⁵ is situated on a number of rock formations, about 10 m. high, now connected by low gravel flats but which, before the rising of the land, were islands. On these gravel flats are newer tent rings, consisting of fairly small, scattered stones, while on the higher rocky terrain are situated the older remains—strong tent rings, meat caches built of heavy stones, some kayak supports and stone pillars, and a festival place. Thus exactly the same structures as the Tunnit remains in Labrador are found here. Even the feature that the old remains are situated on uneven rocky ground and not on the neighboring flats is to be found in Gathorne-Hardy's description of the Labrador ruins. Probably the rising of the land is also here responsible. Possibly the distance from the sea of the breastwork may be explained in the same way.

As a result of this investigation of the Labrador ruins I may say that I do not see any reason for assuming a Norse origin; nearly all their features are well-known from the summer sites of the Thule culture. There are vague points, such as the breastwork, and the structures on tops of hills; but probably these features might be explained if better descriptions were available.

If all these remains really were of Norse origin they would bear witness of a quite considerable colonization. In the surroundings of Nain alone eight Tunnit islands are mentioned, and they are also found on other parts of the coast. It is impossible that these remains can derive from the short visits on the Vinland voyages; hardly even from temporary settlements of hunting parties from Greenland. This Gathorne-Hardy admits, suggesting that they originated from Norsemen who settled here after the destruction of the Greenland colonies.²⁶

Neither in history, in folklore, nor in archaeology, have we

²⁵ Mathiassen, *op. cit.*, 4: 100 (no. 1).

²⁶ Gathorne-Hardy, 162, 1922.

thus any evidence of a Norse colonization on the Labrador coast.

The destruction of the colonies and the fate of the Norse population in Greenland is yet obscure; it is to be hoped that future investigations soon will scatter the mists. The splendid results of Dr. P. Nörlund's excavations in Greenland, and of Professor F. C. C. Hansen's examination of the skeleton material²⁷ do not seem to make Nansen's theory, subsequently adopted by Høygaard and Gathorne-Hardy, more probable. And from conditions in Labrador I hardly think it possible to find support for the theory of a large Norse colonization in that country—not, at all events, on the basis of the yet available material.

NATIONAL MUSEUM
COPENHAGEN

²⁷ Meddelelser om Grønland, 67, 1924.

GENNA IN SOUTHEASTERN ASIA

By MILTON KATZ

THE PENINSULA of southeastern Asia, comprising Assam, Burma, Siam, and French Indo-China, is inhabited chiefly by peoples who belong to four linguistic stocks—the Tibeto-Burman, the Chinese, the Thai, and the Mon-Khmer. Of these, the first and last exhibit, in varying form and under diverse names, a social-religious complex, ordinarily called *Genna* by English-speaking writers.

In the Tibeto-Burman group are included, from Burma, the Burmese, the Chin, and the Kachin, as well as their more northerly congeners, who, like the Moso and Lisu, occupy the borderlands between Yunnan, Burma, and Tibet; from Lower Assam, the Lushai and Kuki, derived from the Chin Hills; from Manipur, the Meitheis; from Assam and Manipur, the Naga tribes, and the Bodo, sometimes so-called—Garo, Mikir,¹ and Kachari; and, from the foothills of the Himalayas and a distance south, the Aka, Dafla, Abor, Miri, and Mishmi. Three strata are in point of time distinguished. The oldest comprehends the ancestral Burmese certainly (references to these in Indian literature antedate the Christian era) and probably the Chin, Lushai-Kuki, Meitheis, and Naga. It also contains the Karen. The Karen dialects belong, with Chinese and Thai, to the Sinitic group of languages; the Sinitic and the Tibeto-Burman are the two great branches of the Tibeto-Chinese superstock.² The most recent stratum is that constituted by the Abors, Miris, Mishmis, Daflas, and Akas, whose descent from their Himalayan homes into the valley of the Brahmaputra dates back not more than 150 years. There is a third, older than the latest yet considerably newer than the earliest, which I take to include the Garo and Mikir, the

¹ G. A. Grierson, in the *Linguistic Survey of India*, 3, pt. 2, classifies Mikir as Naga-Bodo.

² I. H. R. Marshall, *The Karen People of Burma*. *Ohio State Univ. Bull.*, v. 26, no. 3, 1922.

Kachin, and, in a sense, the Kachari. The Kachari are ancient in the valley of the Brahmaputra, in whose western reaches they founded, at least as early as the first centuries of our era, the Kingdom of Kamarupa. Endle³ considers that they emerged originally from Tibet and China, and flowed in two streams southward, the one into Western Assam, there to establish Kamarupa, the other down into Eastern Assam. The latter, if Endle be correct, might well be part of the first incursion of Tibeto-Burman peoples. Not until the thirteenth century, however, do we find the Kachari at Dimapur, whence come the present Kachari of North Cachar and northward, whom we may assign to the intermediate stratum.

Each stratum is redivided into finer laminae, whose inclusion and interrelationship scanty historical materials do not permit us to determine. Three drifts there were, broadly speaking, long-continued and appreciably distinct. On their constitution and significance it is my endeavor in the present paper to shed light.

Wilhelm Schmidt has demonstrated that the Munda tongues and the Khasi, the Mon, Palaung, and Wa spoken in Burma, the Khmer of Cambodia, and the languages of certain of the wilder folk of French Indo-China (of whom the Moi of the Annamese Uplands, the Ba-Hnar of Cochin China, and the Pnong of Cambodia are instances), are affiliated in a comprehensive stock—the Munda-Mon-Khmer. The Munda-Mon-Khmer is itself linked with the Malay-Polynesian family.⁴ Primitively, then, peoples of a single linguistic stock occupied the length and breadth of southeastern Asia, and extended out into the Pacific archipelagoes.

The Tibeto-Burman tribes, of whatever stratum (to a degree those even who have been Hinduized or Buddhized), possess a fundamental similarity in culture. Common to them are the observance of an annual cycle of agricultural ceremonies; a character-

³ Rev. Sydney Endle, *The Kacharis* (London, 1911).

⁴ W. Schmidt, *Die Mon Khmer Völker, ein Bindeglied zwischen Völkern Zentralasiens und Austronesiens*. *Archiv für Anthropologie*, 33: 59-109.

istic house-form, gable-roofed and heavy-walled, with several interior compartments, and a veranda front or both front and back; elaborate fortifications, ditch and rampart; the custom of impeding pursuit or assault by studding the way with stakes; and certain significant factors which shall receive attention below. The sipping of nicotine-stained water is obviously no basic attribute of Tibeto-Burman culture,⁵ yet that its spread should have been restricted to the Tibeto-Burman peoples of the Assamese-Burmese area, long since or freshly arrived, serves further to indicate their essential unity.

In the Genna complex,⁶ three discrete elements are apparent: the Kenna-Penna,⁷ the social Genna, and the erection of memorials.

Kenna and Penna are curious and special forms of taboo, the former a species of quarantine, the latter an obligatory holiday. Either may be pronounced for village, clan, family, or individual. From the village that is Kenna no member may depart, nor into it may a stranger enter, trade and converse between villager and stranger being abrogated; the household which is Kenna advertises its situation by a sprig of herbs posted outside the door, and the villagers eschew intercourse with its inmates; the individual who observes Kenna may speak with none. Kenna may be rigorous or mild: a household will on occasion maintain Kenna only toward members of another village, or of another clan; sometimes personal Kennas are directed merely to outsiders; and mutual Kennas, especially between husband and wife, are common. On Penna days no work may be done, or (for there are degrees of Penna as well as of Kenna), certain forms of work are prohibited. The duration of both Kenna and Penna varies.

Where social Genna occurs, it is the sole or chief means of social advancement. Prestige springs from the performance of a succession of ceremonies, that involve feasting of the village, of

⁵ Tobacco was not introduced into Assam until the 16th century.

⁶ An excellent description of a typical Genna complex may be found in pages 189-242 of J. H. Hutton's *Angami Nagas* (London, 1921).

⁷ I use the Angami terms

the clan, or of invited guests, each feast demanding a larger expenditure than the preceding. The remaining aspects of social Genna will be considered in the detailed analysis of it.

A variety of memorials are erected, notably in the western half of our area, to commemorate the performance of religious or of social Gennas, to recall a great feast, or to mark the grave of a rich or distinguished man.

A theoretical total of Kenna-Penna factors, made up of every significant detail of Kenna or of Penna found in one or the other of the tribes of southeastern Asia, would number one hundred and eighty-seven items, which fall into a series of classes:

- I. Kenna
 - A. Notification
 - B. Village Kenna
 - 1. Accompanying annual ceremonies
 - 2. Accompanying monthly ceremonies
 - 3. Accompanying ceremonies which recur frequently though irregularly
 - 4. Accompanying ceremonies which occur occasionally
 - C. Clan Kenna
 - D. Household and personal Kenna
 - 1. Accompanying ceremonies which mark the crises in life,—birth, puberty, marriage, and death
 - 2. Accompanying periodical ceremonies performed by household or individual
 - 3. Accompanying ceremonies which are demanded occasionally of a family or a person.
 - E. Mutual Kenna
 - 1. Men-women of village
 - 2. Men-women of clan
 - 3. Man-wife
 - 4. Bride-groom
- II. Penna
 - A. Village Penna
 - 1. At annual ceremonies
 - 2. At monthly ceremonies
 - 3. At ceremonies of irregular recurrence
 - 4. At occasional ceremonies
 - B. Household and personal Penna
 - 1. At crises in life
 - 2. At periodical ceremonies
 - 3. At occasional ceremonies
 - C. Magical application of Penna

III. Commemoration of religious Genna

1. Memorials to signal the performance of village Gennas
2. Memorials for clan Gennas

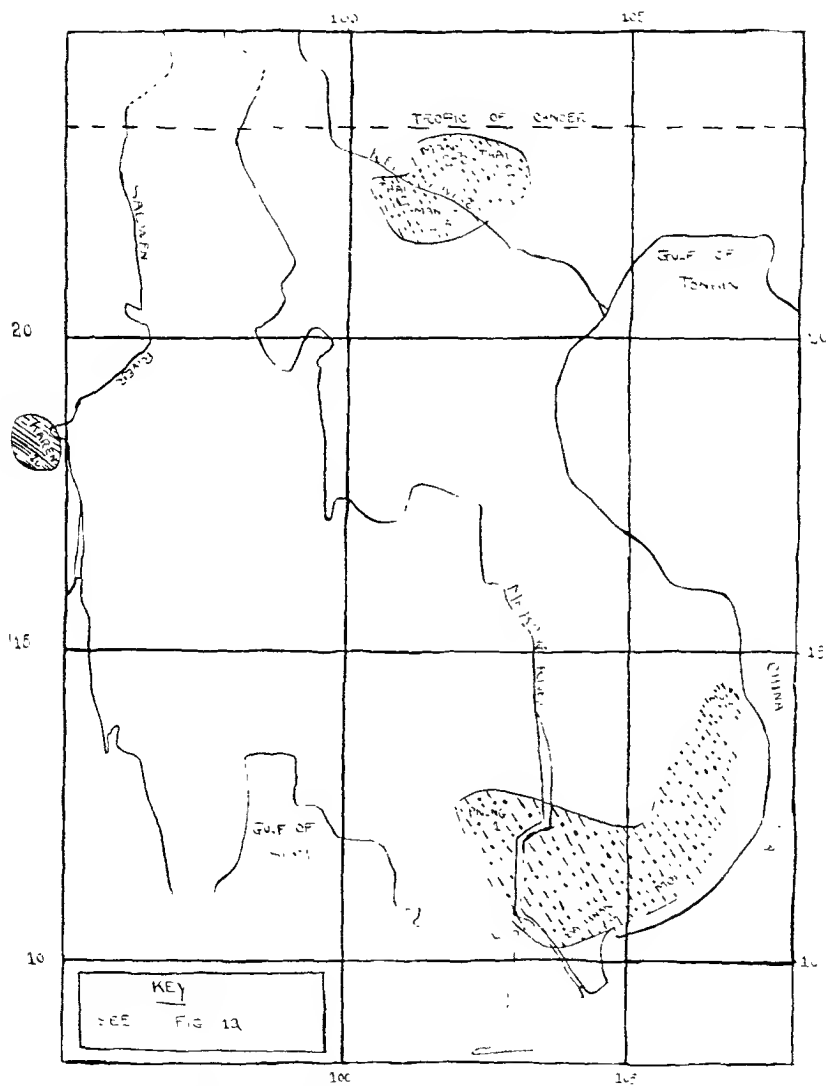


Fig. 2. Distribution of Kenna and Penna (taken together with fig. 1).

The group of periodic ceremonies—annual and monthly, household and village—which are so characteristic of the Tibeto-

Burman tribes, comprises seventy-nine of the factors, and those the most frequently occurring.

Figures 1 and 2, taken together, express the distribution of Kenna and Penna.⁸ (Each numeral on the map represents the number of Kenna and Penna factors found in the tribe with which that numeral is associated.) The traits occur, among Mon-Khmer folk, in the Khasi of the West, and the Pnong, Ba-Hnar, and Moi of the East; among Tibeto-Burman, in the Naga, Lushai-Kuki, Chin, and Kachin; among the Karen; and, in Northern Tonkin, among a few groups of Man and Thai—the Man-Coc, Man-La-Tien, and Pateng of the former, the Muong of the latter. Of the Chang Naga, we have but a brief and hasty sketch⁹; of the Kacha Naga, an antiquated description¹⁰; of the Sangtam, Rengma, and naked Rengma Naga, no account whatever. Information concerning the Chin of Western Burma and the Wa of Eastern is woefully incomplete¹¹; while, for the peoples who dwell in French Indo-China, hardly more than the existence of Kenna and Penna is given in inadequate and random notes.

Rather, then, to paucity in our data than to actual scantiness of Kenna-Penna development, the low score (or failure to score) of these peoples might be attributed. Thus, though no instance of communal Penna is recorded for the tribes of French Indo-China, nor of any sort of Penna for those who speak Mon-Khmer, that Penna may nevertheless obtain is manifest. For Dourisboure¹² tells of his failure to secure access to several villages on account of an "*empêchement*," which closed their gates to strangers and which (as he afterwards learned) "*peut s'étendre a toutes les relations ordinaires de la vie*"; and obviously, denied entrance to a

⁸ According to the information available. For a theoretical representation of what I believe to be roughly the actual distribution of Penna and Kenna, see fig. 2.

⁹ Chang, a section in Appendix 3 of J. H. Hutton's *Angami Nagas*.

¹⁰ C. A. Seppitt, *Short Account of the Kacha Nagas*, 1885.

¹¹ (a) J. G. Scott, *Gazetteer of Upper Burma and the Shan States*, I, 1 441-473 (Chin); 493-519 (Wa). (b) D. Ross, *Notes on Chin Indian Antiquary*, 21: 190-191. (c) S. R. Tickell, *Notes on the Heuma*. *Journ. Asiatic Soc. Bengal*, 21: 207-214. (d) Rev. G. Whitehead, *Notes on the Chin*. *Indian Antiquary*, 36: 204-216.

¹² P. Dourisboure, *Les Sauvages Ba-Hnars* (Paris, E. de Soye, 1873). Dourisboure mentions that the Ba-Hnar practice village Kenna to rid them of an epidemic, or "dans quelque autre but." His explicitness is typical.

village, the honest missionary could not know whether the inmates refrained from labor. And inasmuch as the Lushai, who derive from the Chin Hills, and of whom we possess a satisfactory account,¹³ show a not inconsiderable development of Kenna-Penna, Penna and Kenna must flourish among the Chin to a degree greater than the map suggests—at least, nearly as strongly as among the Lushai.

The Mao-Memi, and the Naga tribes of Manipur in general, deserve special notice. The Mao-Memi are considered by Hodson,¹⁴ by Shakespear,¹⁵ and, in occasional references, by Hutton.¹⁶ The first gives us little; the second, more, though in far briefer compass; the third does not tell much but suggests a deal. The Angami point to the Mao village of Maikel as exhibiting the archetype of their ceremonial; nor, to this day, do the Angami priests proclaim a festival till the priests of Maikel have done so.¹⁷ It follows that the Mao-Memi have every ceremony which the Angami perform, and I think I have ascribed to them no higher a status than is their due. When we recognize that the other Naga tribes of Manipur are described, with the Mao-Memi, in a single volume¹⁴, by an author who records not one-sixth of the Kenna-Penna features of the Mao-Memi, we cannot but admit that, in all probability, these should tally higher than they do.

Now the vast bulk of the Thai, of whom there are many in Indo-China as well as in China, and the Man of China, whence those of Indo-China emigrated into Tonkin, offer no trace of Kenna-Penna; and the groups given as possessing the trait are few and tiny. The origin of Kenna and Penna must consequently be sought in the Tibeto-Burman and Mon-Khmer peoples. But, whereas neither Penna nor Kenna occurs in the Chinese-Tibetan homeland¹⁸ of the Tibeto-Burmans, nor, indeed, among their

¹³ Lt. Col. J. Shakespear, *The Lushai-Kuki Clans* (London, 1912).

¹⁴ T. C. Hodson, *The Naga Tribes of Manipur* (London, 1911).

¹⁵ Lt. Col. J. Shakespear, Appendix 2, J. H. Hutton's *Angami Nagas*.

¹⁶ J. H. Hutton, *Angami Nagas*.

¹⁷ J. H. Hutton, *Angami Nagas*, p. 7.

¹⁸ Since the Mon-Khmer held southeastern Asia originally, and since all traceable Tibeto-Burman drifts have sprung from the Chinese-Tibetan borderlands, it is reasonable to infer that all the Tibeto-Burman groups of the area descended into it from the north.

more northerly representatives in Assam; among the remnants of the Mon-Khmer, the aborigines¹⁹ of the peninsula, eastern and western, both Kenna and Penna are unmistakable. That the Wa lack the traits may, as I have shown, be attributed to deficiency in our knowledge; while the almost completely Buddhized Mon and Palaung and Khmer could hardly be expected to exhibit them. The patent conclusion is that Kenna-Penna evolved among the Mon-Khmer. This contention is supported by two additional facts: first, that the Man and Thai of Northern Tonkin, who have been in contact with the Mon-Khmer, but have not been even in proximity to the Tibeto-Burmans of the West, possess Kenna and Penna; second, that the traits are found in Indonesia²⁰ and Melanesia (and perhaps beyond), whose inhabitants are related in speech to the Mon-Khmer, but do not (so far as we know) evince any Tibeto-Burman features.

Let us now turn to Kenna-Penna as it exists among the Tibeto-Burman tribes. If we recognize that the Kuki,²¹ like the Lushai, are immigrants from the Chin Hills, and that their present northerly and westerly situation is recent; that, as I have demonstrated, it is fair to assume for the Naga of Manipur—the Maram, Tangkhul, Marring, Chiru, Quoireng, Kabui, and Kolya—values higher than those recorded, and for the Chin a tally roughly equivalent to that of the Lushai; and that the Sangtam and Rengma, and the other Naga of the vicinity, probably possess a considerable development of Kenna-Penna; three circumstances become obvious. First, the region of maximum frequency of Kenna-Penna elements is that occupied by the Mao-Memi of Northern Manipur, and the Angami, slightly north and west of them. Second, Penna and Kenna decrease gradually southward and southeastward. Third, the traits cease abruptly to the west

¹⁹ Vide *supra*.

²⁰ The Dusun of North Borneo, described in I. H. N. Evans, *Among Primitive Peoples of Borneo* (London, 1922). After the death of an individual, the remainder of the household is taboo, and its inmates are secluded for a week. A regular monthly calendar is observed of good and bad days, work in the fields,—or, on occasion, merely in the swamp rice—being prohibited on the latter.

²¹ The Lushai-Kuki drifts continued down to 1918. See Hutton's introduction to *J. P. Mills' Lhota Nagas* (London, 1926).

and north, their distribution being here conterminous with that of the Naga tribes. (The Kuki, see above, are to be taken as not belonging so far west and north; and the Khasi are disregarded as being Mon-Khmer, not Tibeto-Burman.)

The Naga, Lushai and Kuki, and Chin, and the Karen, I have assigned to the earliest incursion of invading folk. The position of the Karen is uncertain and anomalous, but they appear to be ancient.²² For the others, my contention is supported by the fact (aside from the evidence afforded by the distribution of Kenna-Penna) that whatever historical references to migration we have, as well as the traditions of the people themselves, reveal them as pushing *northward* from more southerly seats. Inasmuch as their ultimate derivation lies in the north, we must postulate a primitive migration southward (too old to be retained in legend), followed, at a greater or lesser interval, by a reverse movement to the north.

Of the tribes I have included in the intermediate drift, the position of the Kachari,²³ and that of the Kachin,²⁴ is definite. If we look westward from the Angami, we come upon the Kachari, the Khasi, and the Garo. The Kachari, who we know invaded the district in the thirteenth century, and the Garo, whom I have assumed to belong to the intermediate stratum, exhibit cultures fundamentally like that of the Angami, but lack Kenna-Penna; the Khasi, on the contrary (differing in language from the others), offer a condition essentially distinct, yet possess Kenna-Penna. This relationship, together with the abrupt cessation of Kenna-Penna at the division between Naga and Bodo tribes, almost thrusts our conclusion upon us. The Naga, and the Lushai-Kuki and Chin, represent a level of Tibeto-Burman culture older than the Garo, Kachari, and Mikir, and one influenced by the aboriginal Mon-Khmer. And inasmuch as the Kachari, who fall into a group with the Garo and Mikir, are certainly intermediate,

²² The Karen are mentioned in literature as early as the first century of the Christian era.

²³ See above.

²⁴ The Kachin do not appear in Burma till the seventeenth century. See O. Hanson *The Kachins*, introductory chapter (Rangoon, 1913).

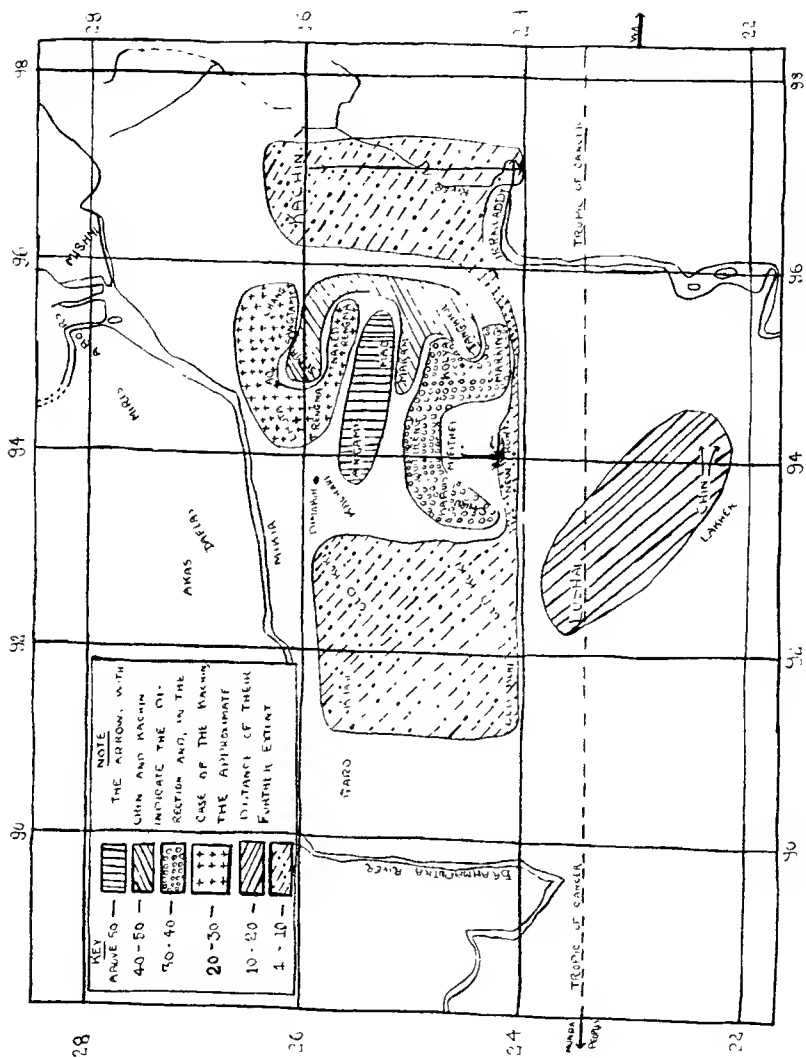


Fig. 3. The actual distribution of Kenna-Penna in the western half of southeastern Asia.

and as the Garo and Mikir are certainly separated by an appreciable interval from the most recent Tibeto-Burman immigrants, I cannot see but that the Garo and Mikir are, almost unarguably, intermediate in their position.

I have not accounted for the existence of Kenna and Penna among the Kachin. The only source whence the Kachin could have derived the traits seems to be the Chin, because of their proximity, and because in condition, culture, and mode of life, the two peoples are very similar.

In its entirety, the situation may be thus epitomized. (Fig. 3 is an attempt to construct the actual distribution of Kenna-Penna in the western half of southeastern Asia. I have not sufficient data to try a similar construction for the eastern half of the area, for which see fig. 2.) Aboriginally, southeastern Asia was inhabited by people who spoke languages of the Mon-Khmer-stock, and who had developed Kenna and Penna. From the borderlands between China, Tibet, and Burma, there drove down in the western half of the peninsula, in early times, the ancestral Burmese, Meithei, Naga, Chin and Lushai-Kuki, and Karen. These settled among the Mon-Khmer; scattered them, suppressed them, and absorbed them; and took over and developed further Kenna and Penna, which fitted nicely into a religious culture that centered in the celebration of an annual cycle of festivals. In time, the Burmese, transformed by Buddhism, and the Meithei, became Hinduized, lost Kenna and Penna; but amongst the others it grew, to reach its highest intensity in the area south of Mount Japvo, where the Mao-Memi dwell, and whence the Angami came.²⁵ The Khasi, the Wa, and the Pnong, Ba-Hnar, and Moi represent in relative purity the present circumstance of the ancient Mon-Khmer peoples. The deficiency in Kenna and Penna of the Wa, the Pnong, and the Ba-Hnar, let me repeat, is probably rather apparent, due to the meagerness of our information, than real. For the low score of the Khasi, two conditions may be responsible: first, that they lack periodical ceremonies, in which, as I have already intimated

²⁵ Angami traditions (confirmed by their subordination to the Mao in religious matters) derive them from south of Mount Japvo. J. H. Hutton, *Angami Nagas*, 7.

(see above), lies the chief expression of Kenna-Penna among those who exhibit it most highly; second, that their culture has been altered considerably by contact with Hinduism. Neither the middle Tibeto-Burman intrusion, come into a land where the aborigines existed in a state only of utter dispersion, and which was subject to the vigorous irradiation of Indian culture; nor the latest intrusion, fresh from the North, which traversed hardly more than the northern fringe of the area, assimilated Kenna or Penna.

Stone columns and dolmens, and diverse memorials of wood, to honor the dead, abound in southeastern Asia; memorials are employed in wood or stone to recall a village feast, or signalize the performance of a social Genna; and, among the Angami, to commemorate a religious Genna, celebrated by clan or village, monolithic pillars are erected. The types of memorials, with their distribution, may be outlined thus:

I. Memorials of wood

A. Forked (Y-shaped) posts

1. For tethering sacrificial buffalo

- a. Sema Naga
- b. Naked Rengma Naga
- c. Southern Sangtam Naga
- d. Khawtlang Sept of Hookip Clan, Thado or New Kuki
- e. Garo
- f. Wa

2. To recall feasts

- a. Sema
- b. Naked Rengma
- c. Southern Sangtam
- d. Khawtlang Sept of Hookip Clan, Thado
- e. Wa

3. To proclaim the performance of a social Genna

- a. Sema
(Possibly, for there are no data available, among the Naked Rengma and Southern Sangtam)
- b. A single clan in the Lhota village of Yekhum
- c. On occasion, when stone is difficult to acquire, among others of the Lhota Naga
- d. For the third social Genna (the Lisu Genna) in the Angami village of Kohima
- e. Lushai. The prongs are of unequal length, and on the longer a Mithan skull is impaled.

- B. Round-topped, cylindrical posts
 - 1. For tethering sacrificial buffalo
 - a. Ao Naga
 - 2. As memorial of a feast
 - a. Ao Naga
 - 3. As memorial of a social Genna
 - a. Ao Naga (presumably—for the existence of social Genna among them is suggested by the phrase: "it [the harvest Genna] is the time chosen by some rich men for giving their feasts to the village")²⁶

Neither Y-posts nor round-topped posts ever serve as memorials to the dead.

- C. Effigies of the deceased
 - 1. Angami
 - 2. Tangkhul
 - 3. Chin
 - 4. Garo
- D. Simple memorial posts to the deceased
 - 1. Bearing horns of sacrificial animals
 - a. Kacha Naga
 - b. Lushai
 - c. Garo
 - 2. Rudely cut or carved²⁷
 - a. The Chawte tribe of Old Kuki²⁸
 - b. Thado
 - c. Chin
- E. Memorial platforms to the dead
 - 1. Angami (sometimes)
 - 2. Lushai (for common people)
- F. 3. Aka²⁹
 - Miniature hut over grave
 - 1. Sema
 - 2. Ao
 - 3. Chin (Chinbòn and Southern Chin)
 - 4. Kachin
 - 5. Karen—in special reburials, of bones of those who died in an epidemic, or at some other unpropitious time

²⁶ W. C. Smith, *Ao Nagas*, 85 (London, 1925).

²⁷ C. Hose and W. MacDougall, *Pagan Tribes of Borneo* (London, 1912), tell of tall memorial posts erected by the Kayans of Borneo; and Gabrielle M. Vassal, *On and Off Duty in Annam* (London, 1910), gives notice of sacrifices of buffalo which attend every religious ceremony of the Annamese Moi, and center on slender posts, adorned with crudely sculptured birds and symmetrical incisions. What, if any, may be the relationships between these and the memorial posts described above, we cannot, in the light of our present knowledge, say.

²⁸ Sometimes the Old Kuki employ such posts to commemorate social Gennas.

²⁹ The Aka are said to erect a small stockade of bamboo and brush, which may have affinities to the memorial platforms.

II. Memorials of stone

A. Monolithic pillars

1. As memorials to the dead

- a. Angami
 - b. Memi-Mao
 - c. Tangkhul
(Possibly, for again data are lacking, among the remaining Naga tribes of Manipur; for the Tangkhul and Mao, and the Lushai-Kuki, possess them)
 - d. Lushai
 - e. Kolhen group of Old Kuki
 - f. Chin (Shendu, Sokte)
 - h. Wa. Collections of boulders are found with painted uprights standing in their center.
 - i. Kachari—with a dolmen on the ground before each upright
 - j. Khasi—often in conjunction with a dolmen
 - k. Mikir—sometimes with a dolmen³⁰
 - l. Munda
 - m. Dimapur³¹
2. To commemorate social Gennas
- a. Angami
 - b. Lhota
 - c. Kacha
 - d. Rengma
 - e. Mao-Memi
 - f. Tangkhul
 - g. Maram
 - h. Kabui
 - i. Quorieng
 - j. Chiru
 - k. Marring
 - l. Kolya
 - m. Old Kuki

B. Dolmens

1. As memorials for deceased (their sole use)

- a. Khasi

³⁰ P. R. T. Gurdon, *The Khasis* (London, 1914), remarks a resemblance between the Khasi stones and those of the Mikirs. This is my authority for assuming the Mikirs erect dolmens with some of their menhirs.

³¹ At the Old Kachari capital of Dimapur, two sorts of monoliths stand, the one cylindrical and round-topped, the other forked. The former are, save in one case, incised in a design very similar to that called "enemies' teeth," by the Sema, and carved on their Y-posts and on the walls of their houses. The latter are adorned with carvings meant presumably to represent the sun and moon, similar to, though more complex than, those cut on Sema Y-posts, and almost identical with the symbols on a barge board in the Angami village of Kohima. See J. H. Hutton, *Carved Monoliths at Dimapur and an Angami Naga Ceremony*. *Jour. Roy. Anthr. Inst.*, 52: 60.

- b. Kachari
- c. Mikir³²
- d. Chin (Chinbök; Yindu)
- e. Wa³³
- C. Platforms
 - 1. As memorials for deceased
 - a. Angami
 - b. Tangkhul
 - c. Lushai (for chiefs)
 - (Rarely, the Old Kuki use stone platforms as social Genna memorials)³⁴

Except for the monolithic columns and the dolmens, whose especial significance I shall demonstrate below, the memorials to the dead comprise wooden effigies of the deceased (life-size or nearly so), tall and slender posts often crudely sculptured, platforms of wood, platforms of stone, and miniature huts over graves, and are employed not otherwise than as sepulchral monuments. Although no one of these is coextensive in distribution with the Tibeto-Burman peoples, each is limited in range to a number of Tibeto-Burman groups^{34a}; and all may in consequence be taken as characteristically Tibeto-Burman. Conversely, it is reasonable to infer that virtually all of the invading Tibeto-Burman folk brought with them some form of memorial to the dead.

To sum up: The dolmen occurs among the Khasi, who constitute the northern and western extremity of its range, and among the Wa, who present its utmost extent to the east and south; likewise among the Mikir and Kachari, in the vicinity of the Khasi, and among the Chin, who may be presumed at some time to have been in contact with the Wa.³⁵ Menhirs, like dolmens, are erected by both Mon-Khmer and Tibeto-Burman tribes. The former include the Munda (among whom the variety and number of monoliths, and the ceremonies attached to them,

³² See footnote no. 30.

³³ In Sung Pamang, a dolmen is found, now said to be the abode of house spirits.

³⁴ Occasionally, even a cairn is thus utilized by them.

^{34a} The Karen, of course, are not Tibeto-Burman, but in the history of Genna their role is analogous to that played by the tribes of the earliest Tibeto-Burman influx.

³⁵ The Wa (see above) are the remnant of a people disrupted and decimated by the Tibeto-Burman invaders, of whom the Chin were among the earliest.

testify to their profound significance even today in the life of the people) in the extreme west, the Wa in the east, and the roughly intermediate Khasi; the latter comprise the Kachari, Mikir, Naga, Lushai, Kuki, and Chin. The Mon-Khmer peoples of French Indo-China seem to have no trace of stone erection; and among the Wa, the custom appears degenerate and marginal. Apparently the lithic culture of aboriginal southeastern Asia was confined to its western half. The inference to be derived from this distribution parallels that with regard to Penna and Kenna; i.e., the early Tibeto-Burman (and Karen) hosts assimilated a stone culture born among the western Munda-Mon-Khmer, into whose lands they drove. The Aka, Dafla, Miri, Abor, and Mishmi, latest of the intruders, do not have stone memorials, nor have the intermediate Garo and Kachin. That the Mikir and Kachari erect them may be attributed to their situation between Khasi and Naga; the monuments of the Kachari might, indeed, be a heritage from the Kingdom of Kamarupa, established near the Munda districts.

Whereas dolmens and menhirs are erected by representatives of the Mon-Khmer as well as of the Tibeto-Burman stock, Y-posts and round-topped posts occur, with a single exception,³⁶ only among members of the latter. The Garo have them, though the Kachari and Mikir have not; the Angami and the Naga north of the Angami possess them, while (so far as our inadequate information³⁷ tells) the Naga tribes of Manipur do not; the Chin, the Lushai, and the New Kuki show them, but the Old Kuki do not.

In the course of the third social Genna (the Lisü Genna) at Kohima village,³⁸ a forked post symbolic of the female organ of generation is carried through the village by chaste boys, who are preceded by a phallus, borne by a man. The primitive phallic significance of the round-topped and Y-shaped posts thus indicated is attested further by two circumstances: First, the monu-

³⁶ The Wa might have taken over Y-posts from the Chin.

³⁷ T. C. Hodson, *Naga Tribes of Manipur*. Its incompleteness has been discussed.

³⁸ J. P. Mills, *Lhota Nagas*, 144, footnote 1, by J. H. Hutton.

ments at Dimapur stand in four parallel rows, two of round-topped stones and two of forked, i.e., in double pairs:

$$\begin{cases} O & O & O & O \\ O & O & O & O \\ Y & Y & Y & Y \\ Y & Y & Y & Y \end{cases}$$

Secondly, both the Kacha-Naga and the Kohima Angami set up memorials in pairs, on the ground that the erection of a single stone would be "abhorrent to nature."³⁹

The facts presented suggest the following history of memorials in southeastern Asia. Into a Munda-Mon-Khmer population, who erected stone pillars and dolmens as memorials to their dead, there came, as an intrusive drift, the first wave of Tibeto-Burman peoples, who honored their deceased with a variety of sepulchral monuments of wood, and who employed, in some phallic ceremonial, forked and round-topped posts. From the aborigines the intruders derived a stone culture; substituting menhirs and dolmens for their own memorials to the dead on the one hand, and menhirs for their phallic posts on the other. Among some, the newer monuments replaced the old entirely; among others, the older persisted, often side by side with the new. In the Lisü Genna at Kohima village, in the Kohima Angami and Kacha aversion toward erecting single monoliths, and in the arrangement of the stones at Dimapur, the ancient phallism has survived. The monuments at Dimapur merit particular comment: the Kachari, either in Kamarupa or locally at Dimapur, not only adapted the new material to the ancient forms, but even retained the ancient mode of decoration. The second stratum of Tibeto-Burman people brought, like the first, wooden memorials and phallic posts. The Mikir, by reason of their position, and the Kachari, because of their situation or of their heritage or both, developed a lithic culture; the Garo, perched on the edge of the Assamese Hills, came within the sphere rather of the potent Indian influence than that of the Khasi or Naga, and did not take over the custom of erecting stones.

³⁹ J. H. Hutton, *Meaning and Erection of Monoliths by Naga Tribes* Journ Anthr. Inst., 52. 242-249.

There prevails among many of the Tibeto-Burman groups of our area a custom whereby an individual, through communal feasts of sacrifice, returns thanks for prosperity to the gods. To the giver of feasts prestige will naturally accrue. From⁴⁰ such a relationship between expressed wealth and personal glory, entirely amorphous, the system of social Genna could, by a process of crystallization, emerge.

The Lushai-Kuki tribes exhibit two steps in the development pictured. Among almost all the Buh-Ai ceremony is in vogue, which consists in the giving of a feast to the village by a rich man who has been favored with an exceptional harvest, in part as thanksgiving, in part for display. Some groups practice the Buh-Ai ceremony alone; others celebrate the Buh-Ai, but possess the *Thangchhuah feasts*—social Gennas—as well. With the passing of the Buh-Ai (or its equivalent), and the retention of social Genna, the final stage, apparent in the Angami and Sema among others, is attained.

We have seen that Y-posts and round-topped posts serve to recall feasts. Posts of this kind, and the monoliths which tended to replace them, would naturally be used to commemorate social Gennas.

In figure 4 I have noted the occurrence of the twenty-one significant social Genna factors, among the tribes reported to have the institution. For social Genna, the discrepancy in fullness between our various sources is painful. Only one of the social Gennas is described by Hodson for the Naga tribes of Manipur; for the Mao-Memi, we have an additional page and a half of matter,⁴¹ so incomplete as not to render it clear whether the Mao have two social Gennas, of which the latter is long-continued and manifold, or one preliminary Genna and a single complex, lengthy Genna, or a number of social Gennas. The tally of the Naga of Manipur, especially that of the Mao, should most probably be considerably higher than that scored.

⁴⁰ This theory of the evolution of social Genna springs from a suggestion contained in J. H. Hutton's *Meaning and Erection of Monoliths by Naga Tribes*, loc. cit.

⁴¹ Lt. Col. J. Shakespear, Appendix 2 of J. H. Hutton's *Angami Nagas*.

Were our hypothetical development of social Genna its actual history, we should expect it to be concentrated among, if not actually limited to, the Tibeto-Burman tribes.^{41a} The map of distribution does reveal it as an attribute of Tibeto-Burman folk only. Like Kenna and Penna, it is conterminous in range with the earliest stratum of Tibeto-Burman culture; like Kenna and Penna, it centers in the region south of Mt. Japvo, in Northern Manipur. (The Angami come from south of Mt. Japvo, and the Sema and Lhota from the vicinity of Japvo; while on the probability that the Mao possess social Genna in greater intensity than shown I have remarked.)

The following is therefore suggested as the history of south-eastern Asia with respect to Genna. Mon-Khmer peoples held the area in ancient days, who evolved Penna and Kenna, and erected great stones, dolmen, or menhir, to their dead. They were disrupted by invaders from the north, of different speech and different culture, who settled, as the ancestral Burmese, Karen, Chin, Lushai-Kuki, and Naga, in lands wrested from the Mon-Khmer. These invaders brought with them a religion which centered in the performance of an annual cycle of ceremonies, mainly agricultural; diverse sorts of sepulchral monuments in wood; phallic posts and phallicism; and the precursor or the equivalent of the Buh-Ai. They not only assimilated Kenna and Penna from the aborigines, traits which harmonized with their emphasis on communal ceremony, but elaborated them; they partly replaced their own wooden memorials to the dead by stones derived from the Mon-Khmer; and they developed the Buh-Ai into social Genna, which absorbed certain Kenna and Penna factors. The Burmese, won to the religion of Buddha, and the Meitheis, become Hinduized, do not exhibit this development, which centered among the Naga tribes of Northern Manipur. In time there came a second wave of Tibeto-Burman peoples, like in culture to the first, comprising the Bodo—Garó, Mikir, Kachari—and the Kachin. The last took the Buh-Ai over from

^{41a} For it was these who practised feasts of thanksgiving.

the Chin; the Mikir and Kachari assimilated the stone culture, which reached its peak at Dimapur; while the Garo in part retained their proper culture, in part were colored by the culture of India. The Munda of Chota Nagpur, who still erect memorial stones, strongly Hinduized though many be, the Khasi, who have kept Kenna and Penna as well as their ancient lithic culture, the Wa, who have memorial stones and may have Kenna-Penna, and who appear, in a reflex influence, to have derived the forked post from the Chin, the Ba-Hnar of Cochin China, the Pnong of Cambodia, and the Moi of the Annamese Plateau, who all exhibit Kenna-Penna—these are the scattered remnants who maintain the primitive Mon-Khmer culture in comparative purity. The Mon and Palaung of Burma and the Khmer of Cambodia have been Buddhized. Finally, the Miri, Mishmi, Aka, Dafla, and Abor pressed into the area, not so deeply as the others, to constitute the third stratum of Tibeto-Burman peoples, untouched by influence,⁴² direct or indirect, from the aborigines.⁴³

HARVARD UNIVERSITY,
CAMBRIDGE, MASSACHUSETTS

⁴² So our fragmentary materials suggest.

⁴³ Linguistic data nowhere contradict, and at several points confirm our determination of the three strata of invading peoples. The Abor, Aka, Dafla, Miri, and Mishi constitute the North Assam group of tongues (Grierson, *Linguistic Survey of India*, 3: 568-569). The Garo and Kachari fall into the Bodo group, and the Mikir into the Naga-Bodo (Grierson, *op. cit.*, part 2). The Kachin dialects form a third class. Naga is a distinctive group; so is the Kuki-Chin, which comprises Chin, Lushai, Kuki, and Meithei. The Naga tribes of Manipur (with the possible exception of the Mao Naga, whose speech may belong to the Naga group) speak dialects of a Naga-Kuki type (*op. cit.*, part 2). The Karen I have discussed.

THE LAGUNA MIGRATION TO ISLETA

By ELSIE CLEWS PARSONS

THE Pueblo Indians have ever been ready colonists. Of their habit of splitting off from a parent group in prehistoric times the innumerable ruins of the Southwest are in evidence as well as Pueblo origin myths and languages. At Taos, the northernmost pueblo, and at Isleta over one hundred miles to the south the same tongue is spoken, although in between lie several pueblos of a different linguistic stock. Again the pueblos of Jemez and Pecos, speaking similar Tanoan dialects, were separated by the Keresan-speaking pueblos. The Spanish Conquest shuffled the pueblos considerably, although it concentrated populations as well as scattered them, and now in recent times the colonizing habit has been encouraged by what we may call the modern American conquest which on the one hand has made the country safe from predatory tribes and so safe for colonies, and on the other hand has introduced conditions arousing the kind of internal controversy which leads to emigration. In the Hopi country the founding of Hotavila and of Pakabi in 1906 and 1910 was a notable instance of feud migration, and before this, in the late seventies, there were the settlement of Mesita by Laguna malcontents and the founding of the Laguna colony at Isleta.

Three Protestant white men had married into Laguna, and became influential in the development of a "progressive" American party. One of these men had married the sister of a foremost medicine-man and the hierarchy was divided against itself. The conservative and more numerous faction left Laguna and went to Mesita, three miles to the eastward. Thence a colony moved to Isleta, arriving some time, perhaps a year, before the railway came through, which was in the year 1880.

According to Isleta tradition the immigrants were intending to go on even further eastward to Sandia, but they were arrested by the Isletan hierarchy, invited to stay, and promised land. Had they not with them their Mothers (*iemaparu*, or corn ear bundles

or fetiches) who would "bring good luck" to Isleta? Today, at old Laguna, there are sore eyes and lameness among the people, the Isletan will tell you, because some of their Mothers were carried away and even those they still have they do not regard.

According to an aged man of Isleta there first came from old Laguna a party of twelve men and women, others followed with the children, to form a colony of between thirty and forty persons. A middle-aged Isletan woman who was married to the son of an immigrant and whom I shall refer to as Lucinda gave a list by name of twenty-six immigrants, and one of the four surviving immigrants who counted by family said there were seven male family heads.

The land given the immigrants was to the southwest, a district already settled by Isletans and called Oraíbi. Today six houses in this suburb of forty-three houses belong to Laguna people (*birnin*) or to Isletans married to persons of Laguna descent. The other houses are occupied by Isletans. In the Laguna houses live, by rough estimate, sixty-two persons of whom fifty-three are of Laguna descent, including three of the four surviving immigrants. The fourth immigrant lives with her son in Isleta proper, where live also nine persons of Laguna descent, making a total altogether with a Laguna family of five in the suburb on the east bank of the Rio Grande of sixty-nine persons from Laguna or of Laguna descent.¹ Of Laguna-Isleta intermarriages I have noted seventeen, among which nine Laguna women married Isletan men and eight Laguna men married Isletan women. The facts of residence show a like even distribution, the intermarrying Laguna men and women living in both Oraíbi and the town proper.

What have been the effects of this contact of about half a century between two distinctive Pueblo groups, speaking different languages, and in their social organization possessed of different traits? It is said in general that Laguna persons are bilingual, but that Keresan has not been learned at all by the Isletans. In fact my chief Isletan informant, although he is godfather to a Laguna child and has been living on and off at Oraíbi for a dozen

¹ Not all persons of Laguna descent were counted. I feel rather sure, although the count was made on a map of the houses.

years and is established there permanently during the last year, knows few, if any, Keresan words, either of the vernacular or ceremonial. He said he had listened in to his neighbors, too, still he could not learn their words. In the families of mixed marriages somewhat different conditions might of course be found and in the case of Lucinda were found, Lucinda having quite an extensive Keresan vocabulary. It would be particularly interesting to learn more positively whether or not any Keresan kinship terms have passed into Isletan usage. My informants make use of four terms for senior collateral kinswomen, *ky'uu*, *kerchu*, *aiya*, and *ia*. Possibly the last two terms may be derived from the Keresan terms for mother and aunt, *naiya*, *yiya*, *yaya*, *iya*,² although *ia*, I recall, is the Taos term for aunt.

The Laguna women are or were skilful potters, the Isletan were not. Until they began to learn more of the craft from the Laguna immigrants Isletan women made only undecorated ware (as at Taos), bowls for chili and for cooking beans. In making the Isletan ware you have only to "build" and polish, for the Laguna ware you "build," smooth, polish, paint, and burn. The best Isletan potter today is Maria Chiwiwi, a woman of fifty, who told me she would watch her Laguna neighbor, Benina Yuwai, and so learned the craft. It was Benina who told her not to use a stick covered with wool as a paint brush, as she had been doing, but to make a brush from yucca fibre chewed fine. And it was Benina who taught her how to ask the Clay Mother for clay. With her "cousin," the wife of the present Laguna governor, she drives in a wagon to the river bank, herself asking the Mother on one trip and her cousin on the next.

Maria Chiwiwi makes pottery only for the American trade. I have been told that Laguna-learned ware is used also in the pueblo. There are about ten Isletan potters of Laguna ware and about ten potters of the old Isletan ware. Curiously enough it was not the potters of the old ware who took to making the new ware. Maria Chiwiwi, for one, had never made the old ware nor does she make

² E. C. Parsons, Laguna Genealogies. Anthr. Pap. Am. Mus. Nat. Hist., 19: 201, 202.

it now. When she needs old ware pots to give away at the Pinitu dance she buys them. Maria Chiwiwi took up pottery-making about seven years ago, after the death of her husband, a man of Laguna descent, and in general the new art seems to have been learned by other Isletans only within a decade. They still buy their paints from the Laguna colonists. White and red pigments come from places near old Laguna, and the black mineral pigment from the Rio Puerco.

Pottery-making aside, it is not in the economic life, which was probably in general very little differentiated, nor in language, but in the social, including the ceremonial, organization that acculturation between the two groups has taken place. Here the original outstanding differentiations were in the matters of clan-ship and of moiety. The Isletans have a marked moiety system,³ the population being divided into Winter people or *Shifun* or Black Eyes, and Summer people or *Shuré* (in English, referred to as Red Eyes). These moieties have no relation to marriage; a child belongs to the moiety of the parents or in case the parents belong to different moieties the children are alternately distributed between the moieties, in theory at least. The people are also grouped in what superficially resembles clans, the seven so-called Corn peoples, each group associated with Corn of one of the five directions (not seven or six). These Corn groups, which also have distinctive names,⁴ are constituted through maternal descent, but the Corn groups have, like the moieties, no relation to marriage. Moreover there is an adoption ritual, and a child may be given to a Corn group not its mother's. The main functions of the seven Corn groups is to perform winter and summer solstice ceremonial and to participate in burial or funeral ritual. The Corn groups are ceremonial organizations, so to speak,

³ Functioning for dancing, clowning, shinny, irrigation ceremonial, and for kivas.

⁴ Day people (*to'tainin*); white corn, east. Poplars (*narnin*) and Magpies (*kouran*); black corn, north. Earth people (*namtainin*); yellow corn, west. Water bubbling (*pachirnin*) and Blowing through Cane (*tutenchu*); blue corn, south. Corn people (*ietainin*) and Eagle (*shyu*), Goose (*kqi*), Bat (*shichu*); mixed corn, up, down, and middle.

This enumeration clears up the confusions of statement in earlier lists (AMERICAN ANTHROPOLOGIST, 23: 153-4, 1921).

pseudo-clans. The Keresans, on the other hand, have true clans, strictly matrilineal and exogamous. They are determined by birth and are but little ceremonial. What moiety system they have is entirely ceremonial, associated with their two-kiva system and their two clown societies.

My Isleta informant knew no more of the Laguna clanship system than of the Laguna tongue. The Laguna people all belong, he insisted, both to the Isletan Corn groups and the Isletan moieties. In other words, he felt that the immigrants had been completely assimilated into the Isletan social organization, in those two particulars, we may note, which would be affected by intermarriage. Juana Torres of the original migration corroborated this conclusion. Her own Laguna clan had been *meyu hano*, Lizard people, and she is now of the Earth people (*nam-tainin*), the Isletan group associated with the west and yellow corn. Now Earth or Sand clan is given as the other name for Lizard clan both among the Hopi and at old Laguna; so Juana had no difficulty in finding her clan equivalent at Isleta. Nor did the Sun clan of Laguna, whom she correlated with the Day people (*tōtainin*) of Isleta. In this, she stated, José Nacio Correo or Shiebatō (Isletan, White Prayer-feather) or Shaatse (Keresan) the head-man, i.e., the Town chief of the Laguna people, belongs. His father, Francisco Correo or Kaituri, Town chief before him, one of the original immigrants, also belonged to the Sun people (Keresan), and the Day people (Isletan). Already in the first generation of the immigrants we see husband and wife belonging to the same Corn group. It is the usual practice when an outsider marries into Isleta that he or she be taken into the Corn group of his or her spouse.

But other Laguna clans were represented among the immigrants—Eagle, Chaparral cock, and Bear, if not others. There is an Isleta Eagle Corn group into which the Eagle clanspeople may have gone; the one Chaparral cock clansman mentioned (Casildo, see later) was taken into the Earth Corn group. I did not learn into what group the Bear clanswoman was taken, probably Day, as she was married to a Sun clansman. The Day people and the Earth people were the two outstanding Corn

groups into which the immigrants were taken, more commonly into the Earth people. In fact, one Isletan asserted vehemently that all the Laguna colonists belonged to the Earth people. Out of all the discrepancies of statement⁵ one thing is clear, the Keresan principle of clan exogamy has gone completely by the board. Even Lucinda was wholly ignorant of its existence, and in her list of immigrants with one exception she has put down husband and wife as belonging to the same clan, a very rare occurrence among the western Keres.

Laguna moiety associations appear not to have been even introduced into Oraibi. No kivas were built. Of the two Clown groups the *kurena* remained at old Laguna, their chief and his son and successor supporting the American faction, because of the American marriage in the family; the *kashare* were among the emigrants; but some of them got no further than Mesita and the one who went on to Isleta, G'asiro of the Bear clan, *not liking it there*, returned to Mesita. We may guess that he did not like Isleta because there was no place either in clan or in society for him readily to fit in. At Mesita and nowadays at old Laguna, too, he is an important ceremonial figure.

We have referred to the Town chief of the immigrants--*l'aikabede* (people chief) or cazique the Isletans call him as they do their own Town chief. At the death of his father in 1918 Shiebatò became Town chief although he was only sixteen and unmarried. By my Isletan informant he was said to represent

⁵ Not to speak of the difficulty of identifying immigrants by name, their Laguna names being distinct from their Isletan names. I found my Isletan informants giving the Corn group affiliations of the immigrants but ignorant of the Laguna clans they had belonged to, my Laguna informant giving the Laguna clans, but ignorant of the Isletan Corn groups; and Lucinda, who should have been the most reliable, the least so, because she merely inferred the Keresan clan affiliations from the actual Isletan Corn group ones, and she made any discussion of the subject impossible because she would not mention at all the ceremonial Corn groups. She once said, "When you go to old Laguna, first thing they ask you is what *hano* (people, i.e., clan) you belong to. If to their's, they want to wash you (referring to the rite of head-washing practiced in adoption or initiation into any group). *But we don't tell them.*" No better evidence than this of the ceremonial and hence secret nature of the Isletan Corn group compared with the non-ceremonial and hence revealable nature of the Keresan clan!

the colony in all its dealings with Isleta, since the secular offices of governor and *tenientes*, originally maintained by the immigrants, have now lapsed.⁶ War captains, however, they do elect, as usual annually, these officials acting in general with the Isletan war captains—three Laguna to six Isletans. In choosing the war captains in both groups moiety representation is considered.⁷ In turn the colonists request the service of the Isletan Grand-fathers (*te'en*), the moiety masked clowns, as watchmen for their kachina dances.

Aside from these masked clowns, the Isletans, like their Tanoan kindred in Taos and Picuris, have no masked dancers; their kachina or *shiwanna* (Keresan) or *liwa* (Isletan) dance maskless.

Although the ritual accompanying the three *liwa* dances in the Isletan calendar unmistakably connects the dances with the widespread kachina cult, it is doubtful if the Isletans themselves relate their *liwa* dances to the masked dances of their Laguna neighbors which my Isletan informant had seen, but of which he had very vague ideas, not knowing even the names of them all. However, from rough sketches the masks appear to be the same as those of old Laguna. There are (1) *chakwena*, (2) in Isletan, *liwa funide* or dark kachina, whose mask, however, is yellow on one side and blue on the other and whose call is oh'o! o'ho! (3) *papire* (Isletan, duck) *katsina*. These three masks come out each as a set or group. With the *chakwena* comes also a single

⁶ This statement, however, is denied by Lucinda who asserts that a governor, two *teniente*, and a sheriff have always been in office at Oraibi. The present (1926) officers are, governor, Pedro Torre (s), son of Santiago Torre (s), the immigrant and sometime governor; *teniente*, Sew Chave (s), the son of Maria Ts'oku, daughter of Juan Pedro, the immigrant, and José Chave(s), son of José Mariano Churina, the immigrant; and sheriff, Tomasi Chiwiwi, an Isletan married to a Laguna woman. Lucinda observed in this connection that Pablo Abeita (the chief of the White Corn group and the most influential personality of Isleta) "hates the Laguna people and wants to cut their ways." He is opposed to their having their own officers. Now my other informant is an adherent of Pablo Abeita, and so he said in the characteristic Pueblo way of denying the existence of what you wish were not so, that there were no secular officers in the colony.

⁷ The Laguna war captains will be one year one Black Eyes, two *shuré*; the year following, one *shuré*, two Black Eyes.

masquerader who except for his mask is like the maskless *aiyayaho* in the Isletan *liwa* dance of autumn. With the parti-colored masks come out to play three *gumeoishi*. Unlike the old Laguna *gumeoishi*⁸ they wear no mask, but a black cloth is around the face which is painted "green." They wear black blankets. One carries a crook cane with feathers attached to it. One has a small drum. They dance around. The maximum number of kachina dancers is eighteen, which corresponds to the number of Laguna males of dancing age. The dancers are led in by their Town chief, without a mask. He is the kachina father or chief.

Not only do Isletans look on at these dances, but they are also the recipients of the kachina dolls made and distributed in connection with the cult.⁹ The house of the Laguna Fathers (see below) is used for night dance practice and by day the street south of the Town chief's house, which is closed to Mexicans and whites by the war captains, is the dance place. There is no dance place in Oraíbi, and, as stated, the Laguna colonists have no kivas. To the house of the Laguna Fathers during the night practice Isletan women will take their fruits, melons, peaches, grapes, etc., to be sprinkled with medicine water. Permission to have a mask dance will be got by the Laguna Town chief from the Isletan Town chief. The seasons for the mask dances are after the February field cleaning or exorcising ceremony by the Isletan medicine societies, and the June solstice ceremonies of the Corn groups.

Besides their mask dances the Laguna colonists present from January fifth to tenth the Kings' day dance, referred to as the Santo Rey dance or, in hybrid Isletan-Spanish, *nareipóa*. Danced by moiety in old Laguna, as it is in the other Keresan towns, this *tablita* or fiesta dance is now danced by the colonists according to their Isletan moiety classification. Some Laguna man¹⁰ will go to the newly installed Isletan governor for permission to

⁸ Cf. E. C. Parsons, Notes on Ceremonialism at Laguna. *Anthrop. Pap. Amer. Mus. Nat. Hist.*, pl. 4 (1920), fig. 15. Inferably, nobody at Isleta has a right to make these masks.

⁹ Isleta townsmen are not allowed to make kachina dolls which they are told are made of *lapukq* (stick, water, carry), light porous sticks carried down by the river.

¹⁰ Presumably it is the governor of the Laguna colony.

present the dance, permission which he gets unless the governor and officers happen to be meanly inclined towards the Laguna people. Permission received, the Laguna Town chief visits the houses of the Isletan Town chief and of the Isletan moiety chiefs. Each will say to him, "All right, you are my son. Whenever you need anything, come to me." When the people see him going around making these visits, they are glad, for they know they will be having Kings' dance for five days. The Laguna dancers will practice in the ceremonial houses of the moieties. To practice with them the new Isletan war captain will choose six Black Eyes and six *shurén* because to represent Isleta these have to start the dance. But the night of January 5, in the church, the Laguna dancers perform. The following day, in the churchyard, the Isleta Black Eyes dance first, then the Isleta *shurén*. After that, the Laguna dancers, six in each moiety set, dance outside the houses of the governor who has been notified by the Laguna Town chief, and of the war captain, lieutenant-governor, second war captain. Presents are thrown to the dancers by the officers—food, a quartered sheep, a hog, chickens, rabbits, tobacco, cloth. Once a man threw a cat arrayed with silver earrings, a necklace, and ribbons. This was taken, of course, as a huge joke. On the second day there will be eight dancers in each alternating set; the third day, ten; the fourth day, twelve; the fifth day, fifteen. On the second and subsequent days the dancers meet in the house of the Isletan Town chief to dance first in the churchyard; then in the street south of the Town chief's house. A few Isleta women or men may have been invited by the Laguna dancers to dance with them; but only a few, because this is a ceremonial dance which the Isletans do not know. My Isletan informant held this opinion about the dance being ceremonial because of the head feathers worn by the women, which are the same as those worn in ceremonial by the Isletan medicine-men, a bunch of variously colored feathers called in Isletan *nafechure*, root yellow, and because of the oblong tablets of sun and moon worn on the back¹¹ by the men.

¹¹ To Lucinda it was this position of the tablet or plaque which distinguished the dance from the fiesta dance at San Domingo on October 4, in which the tablet is carried on the head.

To the medicine or curing organization of Isleta the Laguna immigrants have contributed perhaps most distinctively. There are now in Isleta two curing societies—the Town Fathers (*tòeka'an*) and the Laguna Fathers (*birka'an*), the chief of each referred to respectively as *tutude* (older sister) and *bachude* (younger sister). In the latter group there are now no persons from old Laguna or of Laguna descent, nevertheless the name of the society points to a Laguna origin, as well as certain other facts. The predecessor of the present chief of the Laguna Fathers was named Usaa, which is a Laguna word for sunrise.¹² (Usaa died in 1924.) Usaa got his Laguna name when he took office because he was installed by the Laguna Town chief Kaituri. The rule for office filling at Isleta is succession by trained assistant; but there happened to be no trained successor to the office in the society. In the memory of my informant there were three Laguna medicine-men in the society, Kaituri or Francisco Correo, Juan Rey Churina or Sheride, and Casildo Velho (old man) or Iunai, all deceased. Kaituri we have noted as the sometime Town chief and “kachina father” of the Laguna colony. At old Laguna he was called *Kaiye'kye* and described as a Fire *cheani* or medicine-man. Juan Rey was a stick-swallower and he maintained the Keresan ritual of stick-swallowing at Isleta, using the room of the Laguna Fathers for his ceremony which only the Laguna colonists attended and which was thought of as their peculiar medicine ceremony. At old Laguna Juan Rey was called Reisho¹³ and was described to me in 1926 as a Flint *cheani*, to Dr. Leslie A. White, in 1927, as a *shahaiye*¹³ or *shiwanna cheani*. Juan Rey, who was headstrong even in old Laguna, used to fight with Pablo Abeita. Because of this hostility, Rey in 1923 decided to leave Isleta and go to Sandia to live. There was much perturbation in Isleta. Rey had sent on to Sandia ahead of him the box containing his swallowing-sticks, together with the canes of office of the governor and officers of the Laguna colony. A woman told somebody about Rey's action, and somebody told the governor

¹² *Osach*, sun.

¹³ *Shahaiye* was the term for the group; *shiwanna*, for the individual member. They treated lightning shock. (White).

of Isleta, who told the Town chief of the Laguna colony. "They had a meeting about it. They would not let Rey go to Sandia until they got back his box. They sent some men for it. Then Rey went to Sandia. After a year he died.¹⁴ He did not last long because he broke his promise to do his ceremony at Isleta. . . . "

Juan Rey was the designer of the pantheon represented on the walls of the chamber of the Laguna Fathers, of Sun, Moon, Orion's belt, Rainbow, Lightning, Mountain Lion, Bear, Rattlesnake, Eagle, Badger (?), Corn of the directions, and the anthropomorphic figures called *ku'an piaunin* who are the spirit patrons of the society. Juan Rey also doctored for ant sickness, and he had passed on his curing ritual to a younger member of the Laguna Fathers, an Isletan. Juan Rey's wife who died about 1921 was the daughter of José, the *shahaiye* or *shiwanna cheani* of old Laguna. His daughter was also a *shahaiye cheani* and would go to old Laguna to help her father. And her father frequently visited her in Isleta. José in the account he gave me in 1917 of the Laguna emigration mentions Rey (Lei) although, characteristically, he did not refer to him as his son-in-law. I conclude that Rey was not a Flint *cheani*, but a *shahaiye cheani* of the Ant and Giant subdivisions. The *shahaiye* were stick-swallowers. Besides *shahaiye*, said José, Fire (*hakani*) and Flint (*hish*) *cheani* had gone to Isleta.¹⁵ Pedro Martin' (Felipe) of Isleta and Laguna whose Laguna father was a Fire *cheani* in the Laguna Fathers and who was himself a sometime member of the Laguna Fathers as a Fire *cheani* stated to me that there was in the Laguna colony a *shguyu* (giant) *cheani*.¹⁶ Probably this was Rey. Now at Laguna the Giant *cheani* had the right to make kachina masks. If Rey was the Giant *cheani*, inferably it was Rey who made the masks at the Laguna colony. At old Laguna Casildo (Casidro Castellano) was reported to Dr. White to be the chief of the Fire society, all four members of which had emigrated to Isleta, carrying with them their altar and their swallowing sticks. At Isleta it was

¹⁴ His daughter returned to Isleta to claim his house and land, but the governor of Isleta had already "handed it" to an Isletan.

¹⁵ Notes on Ceremonialism at Laguna, 109.

¹⁶ AMERICAN ANTHROPOLOGIST, n. s., 22: 59, 1920.

stated definitely that Casildo was possessed of fire ritual, which he taught to a younger member of the society, Juan Chato, who now builds the fire ritualistically in any ceremonial room at the request of the Town chief or War chief. Juan Chato can handle fire and stand on coals without being burnt. All such fire-making and testing is, we may infer, of Laguna introduction.

We may summarize the outcome of the Isleta-Laguna contact as fourfold:

1. The language of the immigrants has been retained, but not communicated to the hosts.
- (2) Refinements in the craft of pottery-making have been passed on from immigrants to hosts.
- (3) That part of the social organization which is affected by intermarriage and descent (moiety and clan) has been adopted by the immigrants from the hosts.
- (4) The ceremonial organization of the immigrants has been retained and fitted into or patched onto that of the hosts.

Comparison of this recent Laguna immigration with another immigration that has been studied,¹⁷ that of some Tewa to the Hopi early in the eighteenth century is of interest. The contact between the Hopi and the Tewa immigrants to First Mesa produced results quite similar to that between the Laguna immigrants and the Isletans—retention of their language by the immigrants without communicating it to their hosts¹⁸; adoption by the immigrants of the social organization as affected by intermarriage (adoption of a different clanship system, and in this First Mesa case the breakdown of the moiety system of the immigrants); ceremonial contributions by the immigrants.

HARRISON, NEW YORK

¹⁷ E. C. Parsons, *Cérémonial Tewa du Nouveau Mexique et en Arizona*. *Journal de la Société des Américanistes de Paris*, n. s., 18: 9-14, 1926.

¹⁸ The conditions in regard to pottery making were quite different for the Tewa immigrants than those for the Laguna immigrants, as the Hopi hosts of the Tewa probably excelled them as potters. But it were of interest to know if the Tewa immigrants contributed any Rio Grande methods or designs to the First Mesa craft.

THE FAMILY HUNTING TERRITORY IN AUSTRALIA

By D. S. DAVIDSON

UNTIL comparatively recent years, there has been a general supposition that so-called primitive man held no concept of real property ownership. This point of view, which has been maintained by many, has been set forth perhaps most forcefully by Morgan,¹ who has not only denied the existence of property ownership to nomadic hunters (his savages) but to agriculturalists and pastoral people as well. It has been maintained that it was impossible for people who were constantly on the move in search of game, upon which they were dependent for a food supply, to come to regard any part of the terrain over which they wandered, as belonging exclusively to any one group, let alone to any one individual. The lack of ethnological information in the past, no doubt, has been the prevailing cause for this misconception. Today, however, our information is more complete and our steadily accumulating data are slowly but surely tempering with facts many of the theories which have prevailed in the past concerning the phases, conditions, and factors of aboriginal livelihood.

The theory that primitive nomads, in every case the world over, are characterized by an unrestricted wandering over vast areas of country, with a consequent lack of geographical limits for even such a large unit as a tribe, was first disproved by Speck in 1914.² Subsequently, he has brought forth an abundance of

¹ L. H. Morgan, *Ancient Society*, 525-554 (New York, 1877).

² F. G. Speck, *Basis of American Indian Ownership of the Land* (a lecture). Old Penn, *Official Weekly Review of the University of Pennsylvania*, 181-196, 1914-1915. *Family Hunting Territories and Social Life of Various Algonkian Bands of the Ottawa River Valley*. *Canadian Geol. Surv., Mem.* 70, 1915. *The Family Hunting Band as the Basis of the Social Organization of the Algonkian*. *Amer. Anthr., n. s.*, 1915. *Kinship Terms and the Family Band Among the Eastern Algonkian*. *Amer. Anthr., n. s.*, 1918. *Mistassini Hunting Territories*. *Amer. Anthr., n. s.*, 1923. *Hunting Territories and Boundaries of the Massachusetts and Wampanoag Indians*, MS, 1924. *Pamunkey Hunting Grounds*, MS, 1924.

Vide also W. C. MacLeod, *The Family Hunting Territory and Lenape Political Organization*. *Amer. Anthr., n. s.*, 1922. D. S. Davidson, *Notes on Tête de Boule Ethnology*. *Amer. Anthr., n. s.*, 30: 18-46, 1928.

evidence from the Algonkian field of North America to substantiate his claims and has shown that not only the political group, which in this region has been designated the band, has definitely bounded lands, but also that it is in reality the individual families, together composing the larger unit, which consider themselves as the actual owners of the subdivided band territory. In fact, this ownership has been developed to such an extent that the individual owners, the family heads, have been able to readily indicate the extent of their holdings on the maps which have been presented to them.

The Algonkian family hunting territory system, as it has been called, has been shown to embrace perhaps one-eighth of the North American continent. It has been found to extend from eastern Ontario to the Labrador coast, along both shores of the St. Lawrence river and inland. It includes the entire provinces of Nova Scotia, New Brunswick, and Newfoundland, and survivals have been detected in many places along the Atlantic coast as far south as Virginia. Undoubtedly further research will extend considerably the already grand limits of this system.

Far away in another part of the world, however, live another nomadic people who, excluding the now extinct Tasmanians, have been considered by many as the most backward group of the human race. These people are the Australians. In fact, Sollas has regarded their culture as sufficiently archaic to permit them to be designated as "The Mousterians of the Antipodes."³ Although this descriptive term is well coined, it must not be taken as literally true. However, if the Australians may not be considered as truly Mousterian, their culture in general, but with exceptions of course, may be safely designated as at least partly palaeolithic.

To the ethnologist, the Australians constitute an especially interesting people because of their highly specialized social organization. It is not surprising, therefore, to find that most investigators have almost invariably stressed these social features and, on the other hand, have given but passing attention to the less profound but nevertheless important economic aspects of Australian life. From the inclusive point of view of general eth-

³ W. J. Sollas, *Ancient Hunters*, 205 et seq., London, 1915.

nology, Australia, therefore, has been a very neglected continent. We can fully appreciate this fact if we but stop to remember that although Australia is of approximately the same size as the United States, the ethnological literature concerning this continental island is no greater in volume than the published works for many single tribes or groups of related tribes in North America.

Because of its continental dimensions, Australia, at first glance, would be supposed to naturally harbor many different culture groups, if we would base an opinion upon the established facts which betray a great number of diverse culture areas on the other great land masses. This supposition, however, cannot be substantiated for, upon analysis, the whole continent of Australia appears to have been characterized by culture traits of more or less resemblance. The similarities seem to be so continental in distribution and the differences appear to be so minor in consequence that an attempt of classification into distinct culture areas, on the basis of present information, would seem to my mind to be not permissible. In other words, Australian culture seems to represent somewhat of a unity, the description of which, allowing for local variations and for a gradation of intensity of social institutions, would be, in general, equally and characteristically applicable to practically any Australian group.

Let us, then, consider the Australians. To the experienced reader, the Australians need no introduction, but for the benefit of those not familiar with them, I include the following brief descriptive summary.

The physical characteristics of the Australians are but fairly well known and need not concern us here. Their social institutions have received considerable attention and description even though they may not have been accurately interpreted. These, too, may be passed by. Their economic life, however, has been but poorly described except in a few instances. It may be summarized briefly by the statement that the Australians are nomadic hunters, and this nomadism is accompanied by a series of negative traits. Australian culture is marked by an absence of such traits as pottery, agriculture, metallurgy, clothing, permanent dwellings, and domesticated animals (except the Australian or dog dingo).

Furthermore, in Australia there are no bows and arrows. In fact, there is very little which the Australians do have in the line of material culture. Their stone work, which includes knives, picks, and axes, is, on the whole, extremely crude, some specimens of their handiwork being hardly palaeoliths. In general, their principal weapons are throwing-sticks (including the boomerang), digging sticks, clubs, spears, and spear-throwers. The spears vary in quality from simple, crude, straight, pointed sticks to well-constructed, barbed, complex implements. For defense, they use the wooden shield. If we append this list of tools with a few varieties of grass bags, bark and wooden trays and some smaller articles of non-utilitarian and religious significance, the material culture of these people would be about exhausted.

As has been said, the Australian is a hunter, and in those districts where fish are obtainable, he is a fisherman, as well. A constant nomad, he spends, very often, his entire day in search of the animal life upon which he is dependent for food supply. Among the more important game animals are the kangaroo, the bandicoot, the wallaby, and many smaller animals. This diet is supplemented by all kinds of wild fruits and nuts and insects.

In truth the Australian aborigine, in the minds of many, represents one of the most primitive, if not the most backward, of all the world's people. Living in the present day, he portrays to us a culture which in many respects appears to have been equaled, if not surpassed by palaeolithic culture in Europe of twenty thousand years antiquity.

Although a constant nomad, however, and this point cannot be too strongly emphasized, the Australian is not the unrestricted wanderer which some would have us believe. Neither the tribe, the local group, the family, nor the individual move about from one part of the continent to the other wherever fancy happens to guide, for all are bound to certain customs and traditions which have the force of inviolable laws. That there are well defined limits beyond which an individual and his family may not trespass will be brought out below. But first we must consider the political organization of the Australians.

Every Australian may be classified into a grouping (of which he is perhaps not conscious), which for lack of a better term may be called a tribe. According to various authorities, a tribe, as it pertains to the Australians, may be defined as a social unit which seems to be characterized by a name, a common speech or dialect thereof, which has the same or similar customs and which occupies a recognized territory.⁴ In reality, a tribe is not a political unit, for as has been shown by Wheeler, tribal unison and tribal authority are almost non-existent.⁵ Although a tribe is recognized as occupying a definite territory, this consideration is extremely vague, for the tribal land is merely the aggregate of the districts owned and occupied by the constituent subdivisions of the tribe. Every Australian tribe seems to be divided into what writers on Australian ethnology have designated as local groups. A local group may be defined, in general, as a group of paternally related male individuals who with their wives, from other local groups, and children, occupy a geographical subdivision of the tribal territory and possess the exclusive right to dwell within the limits of that territory.⁶

Now the local group, as I have pointed out in another connection, is of continental scope in Australia.⁷ Indeed, it appears to constitute the foundation, the basis of Australian social organization. These local groups, almost without exception, whenever description by observers has been at all detailed, seem to evince the same general characteristics. These may be summarized as follows:

1. The local group is a land-owning unit.

⁴ Compare A. W. Howitt, *The Native Tribes of Southeast Australia* (London, 1904), 41; B. Spencer, *The Native Tribes of the Northern Territory of Australia* (London, 1914), 34; vide also note 6.

⁵ G. C. Wheeler, *The Tribe and Intertribal Relations in Australia* (London, 1910), 15, 18, 19.

⁶ Vide Spencer and Gillen, *The Northern Tribes of Central Australia* (London, 1904), 27, 31; B. Malinowski, *The Family Among the Australian Aborigines* (London, 1913), 134, 135; N. W. Thomas, *Kinship Organizations and Group Marriage in Australia* (Cambridge, 1906), 8; E. M. Curr, *The Australian Race* (London and Melbourne, 1886), 1:61, 64; A. W. Howitt, *Smithsonian Report* (Washington, 1885), 3; Wheeler, *op. cit.*, 55.

⁷ D. S. Davidson, *The Basis of Social Organization in Australia*. *Amer. Anthr.*, n.s., 28, 1926.

2. Patrilocality is the usual procedure.⁸
3. The land of the local group is inherited in the male line.⁹
4. Leadership in the local group is vested in a headman
5. There is a tendency for this position to be hereditary.
6. The old men form a Council of Elders.
7. Trespassing by outsiders on the territory of the local group is strictly prohibited unless permission is first granted.
8. Boundaries of the local group territory are well known.¹⁰

In many parts of Australia, however, the local group itself is not the primary land-owning unit. As has been indicated, the local group is itself no more than a large paternally related family. In our application of the word "family" to the Australians, we must allow for a wider meaning than that usually applied, for, in some cases, the term has been used by writers to include the grandparents, and thus it may refer to a three-generation family.

In parts of Australia, apparently for the most part in most regions except in central and northwest Australia, there are many reports to show that the land of the local group is divided among the individual families which compose its membership. Some investigators, as will be seen below, have spoken of territories as being the property of individual males. It seems clearly evident to me that, whether a family or an individual is spoken of as possessing ownership of a district, the same meaning is inferred. The difference apparently is merely one of expression. If a single male is said to own the property, it seems evident that this is the same as saying that his family own it, for, in addition to himself, his wife and children likewise conjunctively use the

⁸ Almost without exception the wife comes to live within the local group of the husband, although there is information which indicates that sometimes the husband is extended hunting privileges over the land of the local group of the wife. See A. R. Brown, *Three Tribes of Western Australia*. Jour. Roy. Anthr. Inst., 43: 147.

⁹ There are a few reports of female inheritance, vide Spencer, *op. cit.*, 46, Howitt, *Native Tribes*, 82, 83, J. Dawson, *Australian Aborigines* (Melbourne, 1881), 7. Brown, *op. cit.*, 147; W. E. Roth, *North Queensland Ethnography* (Brisbane, Bull. S: 8-9, 1901-06).

¹⁰ It is undoubtedly true that, in general, no artificial means are used to indicate the extent of a local group's holding, but, on the other hand, the natives seem to have carefully described boundaries, based upon such natural features as streams, lakes, clumps of trees, waterholes, ridges of land, and the like.

territory. On the other hand, if a family is said to own a strip of land this appears to be the same as saying that the head of the family owns it, for the head is the authority within the extent of the family confine. Naturally, to the European there is a decided difference in meaning, but this cannot be presumed for the Australians because of the vague manner in which the land tenure system has been reported by investigators. Let us then consider the evidence for family and individual ownership in Australia.

Curr, in connection with the local group (his tribe), has said:

I have spoken of its territory as being used in common but there is no doubt that in many tribes (our local groups) the land is divided into portions, each of which is the personal property of a single male. The boundaries of these portions are known but not with any precision, and I have never heard of an instance of their being artificially marked, as some writers have asserted in general terms . . . as the blacks have a very elaborate nomenclature of their lands it is probable that before a father dies, he in some cases divides his lands amongst his sons, and in others lets the tribe know to which of his sons he has bequeathed the various portions of his property . . . and it is likely that no male possesses any land until after the death of his father, and that every male whose father is dead owns a portion of the tribal (local group) territory.¹¹

Parker,¹² in speaking of the territory of a local group (his tribe), has said:

The subdivision of the territory even went further than that . . . each family had its own locality . . . the older men can clearly point out the land which their fathers left them.

Howitt also implies the family ownership of land in speaking of the territories of the local groups. He says:

These are again divided into smaller groups, until the smallest unit consists of a few people of the same blood, under the direction and guidance of the oldest or most able of the elder men.¹³

Thomas adds a generalization that

The local group again falls into a number of families (in the European sense)

¹¹ Curr, *op. cit.*, 1: 64.

¹² Parker, *The Australian Aborigines* (a lecture), 1854, pp. 11-12 quoted by B. Smyth, *Aborigines of Victoria* (Melbourne and London, 1878), 1:40.

¹³ Howitt, *Smithsonian Report*, 3.

and the land is parcelled out among them in some cases, in others it may be the property of individuals.¹⁴

The preceding statements, however, on the basis of present although conflicting information, must be qualified by excluding from the areas to which they apply, parts of central Australia and northwestern Australia. For example, Spencer and Gillen have emphatically denied the existence of individual owners among their "Northern Tribes of Central Australia." They say:

There is no such thing as one man being regarded as the owner of any tract of country. In every case the unit of division is the local totemic group.¹⁵

On the other hand, for the southern tribes of this district they have implied the presence of family tracts. For the latter they say:

Turning again to the group, we find that the members wander, perhaps in small parties of one or two families, often, for example, two or more brothers with their wives and children, *OVER THE LAND WHICH THEY OWN*, camping at favorite spots where the presence of waterholes, with their accompaniment of vegetables and animal food, enables them to supply their wants.¹⁶

In the far northern part of central Australia, moreover, the existence of family ownership of districts has been reported by Parkhouse, who applies his remarks to the Larakia, Awarra, Aggradundi, Adowen, Mennagi, Wulnar, and other tribes of the mainland between Port Darwin and Eveleen.¹⁷ It would appear, therefore, that it is, in reality, only a relatively small area, extending from the center of the continent to the northwest coast for which the specific denial of the existence of family lots has been made. For most other parts of the continent, however, the evidence, when given, is quite positive.

For Victoria, for instance, we are informed by observers that the family or individual ownership of land was not only present but was the customary institution. For the Kurnai we may refer to Howitt, who tells us that the local groups were divided until the basis of society was the family unit which inhabited its own

¹⁴ Thomas, *op. cit.*, 8.

¹⁵ Spencer and Gillen, *The Northern Tribes of Central Australia*, 27.

¹⁶ Spencer and Gillen, *The Native Tribes of Central Australia* (London 1898), 16.

¹⁷ T. A. Parkhouse, *Transactions of the Royal Society of South Australia*, 191, 1885.

tract of hunting and food ground.¹⁸ Curr, in describing the organization of the Bangerang, implies family ownership for each of the little creeks which conduct the flood waters back into the river,¹⁹ and Howitt gives the impression that the Kulin tribes had family ownership of definite tracts of country and food grounds.²⁰

For southwestern Victoria, Morgan reports that each "tribe" had its territory divided so that each family owned a definite tract of land which was inherited from father to son.²¹ Furthermore, Dawson, for this same region, points out that when these estates met at lakes or swamps, special care was taken to define accurately the boundaries of each.²²

Dawson gives a very detailed description of inheritance:

Upon the death of a father, his widow and children, regardless of sex, share equally in the division of the family tract. Any child born on the estate, even of visiting parents, was considered to have a birth right (if six months old at the time of the death of the owner) in the property, therefore being entitled to its share of the inheritance. A child in this category was considered as adopted, with no distinction between it and the other members of the family. If a family should die out without leaving any flesh relatives, it was necessary for the headman to divide the territory between the families whose estates were contiguous. If there were living claimants, the headman immediately assigned them equal shares to their family territory, regardless of the age or sex of the survivors. Those who were under age had trustees appointed to look after their property until they reached majority.

In respect to trespassing, Dawson says:

Trespassing or poaching was severely punished, no member of any other family being allowed upon the property without the permission of the head of the family. . . . When one group wished to cross the territory of another the headman usually preceded it and obtained permission from the headman of the next.

Eyre, whose information covers the lower Murray River district, in speaking of the territory of a local group (his tribe), informs us that in this region

¹⁸ Howitt, *The Native Tribes of Southeast Australia*, 73.

¹⁹ Curr, *op. cit.*, 1: 65.

²⁰ Howitt, *op. cit.*, 72.

²¹ J. Morgan, *Life and Adventures of William Buckley* (Hobart, 1852), 37.

²² Dawson, *op. cit.*, 7.

These districts are again parcelled out among the individual members of the tribe (local group). Every male has some portion of land, of which he can always point out the exact boundaries. These properties are subdivided by a father among his sons during his own lifetime, and descended in almost hereditary succession. A man can dispose of or barter his lands to others, but a female never inherits. . . .

With respect to trespassing, he says:

Tribes (local groups) can only come into each other's districts by permission, or by invitation, in which case, strangers or visitors are always well treated.²³

For the Itchumundi, Karamundi, and Barkinji who lived in northwestern New South Wales, Howitt informs us that

The unit of local organization was the small family group which hunted over its own restricted land.²⁴

Around Cape Bedford, Bloomfield river, and Cairn's Hinterland on the coast of northeastern Queensland were a group of people described by Roth. Here were found local groups, subdivided into family tracts, each of which had a distinctive name and a well defined boundary.

Roth says:

In the same way as a European knows what vegetable shrubs or flowers are growing in his garden, so do the natives have a very fair idea of the amount and whereabouts of any special growth of edible roots, fruits, and small seeds, as well as the particular haunts of the various animals and birds found on their particular piece of ground. For one family or individual to obtain vegetables, fowl or meat without permission upon the land belonging to another family, constitutes trespass and merits punishment. This, however, is usually not a very serious character unless a non-tribe man is concerned: a slanging match, with both parties indulging in obscene epithets (Bloomfield River) or a spearing in the leg (Cape Bedford). Trespass is, after all, but rarely committed considering that, on account of their very hospitality, when one family experiences a super-abundance of food of any description, its friends and neighbors are generally invited to come and partake of it. For a non-tribesman to trespass means death, and the risks run on occasion are enormous.²⁵ . . . Inheritance in land passes through the blood brothers and blood sons.

²³ E. J. Eyre, *Journals of Expeditions and Discovery into Central Australia* (London, 1845), 2: 218.

²⁴ Howitt, *op. cit.*, 50, 51.

²⁵ Roth, *op. cit.*, Bull. 8.8-9.

In eastern Queensland, within 50 or 60 miles of Maryborough and including Great Sandy island,²⁶ were many people who have been considered by Howitt as subdivisions of one great tribe. Each, in all cases, he tells us, was subdivided into local groups with their definite areas of hunting and food grounds. It seems that partition of territory went still further, since smaller districts of about ten miles radius are spoken of. These were occupied by little more than individual three-generation families, but, at the same time, although property right of the small family group is implied, it cannot be said that they actually possessed their districts, since a number of such families hunted together over the same area. Presumably, the local group territory or a part thereof was used as a hunting ground by several families and, although each family unit also had title to a definite tract, exclusion of others was not exercised and this privilege of use was reciprocated.

In respect to western Australia, we have some information from Calvert. He tells us that every tribe owned its own district which it inhabited to the exclusion of others, restricting them from hunting or trespassing by force of arms.²⁷ Sections of the tribal territory were recognized as the property of the individual members of the group, not only the land but also the animals on it falling within their scope of possession.

Landowners were very jealous of their rights and pugnacious in upholding them.

This statement is agreed with by Grey who says:

Landed property does not belong to a tribe, or to several families but to a single male and the limits of his property are so accurately defined that every native knows those of his own land and can point out the various objects which mark his boundary.²⁸

Roth indicates the same meaning when he writes:

Each family of the tribe had a more or less defined area of country belonging to it—a kind of heritage; its rights over such tracts were respected and any infringements regarded in the light of trespass.²⁹

²⁶ Howitt, *op. cit.*, 58; also vide Smyth, *op. cit.*, 1:146.

²⁷ A. F. Calvert, *The Aborigines of West Australia* (London, 1884), 20.

²⁸ G. Grey, *Journal of Two Expeditions of Discovery in Northwest and Western Australia* (London, 1841), 2:252. See also *Curr. op. cit.*, 1:325, for marked boundaries of the Newcastle tribe.

²⁹ W. E. Roth, *Proceedings of the Royal Society of Queensland*, 17:50.

He confirms the observations of Grey in another passage:

Each family in the tribe had its own territorial division, its own Kula or fireplace to which it had a prior right, the land being divided ultimately among the sons on the death of the owner.³⁰

Something of the nature of the authority which an Australian of southwest Victoria held over his land may be discerned from an old document dated June 6, 1835, a facsimile of which Dawson has reproduced.³¹ According to this important deed, a certain territory was conveyed by natives to a Victorian settler by the name of John Batman. This conveyance serves to indicate the absolute authority which an individual possessed in relation to his real property and the rights which he had to dispose of the same.

By this conveyance, title to circa 100,000 acres, or about 150 to 160 square miles was given to Batman by eight Australians for a certain consideration of goods. In addition, an agreement was made whereby a yearly installment, more than a mere yearly rental, was to be paid. In analyzing this important transaction, it seems to be clearly evident that the land involved must certainly be that of a local group, or at least a portion of one, and not that of a tribe, which term is used in the document. Even in Victoria, where perhaps natural conditions were favorable to a large native population, it seems incredible to believe that a territory of about seven miles radius could support a tribe. It seems difficult to assume that even a local group could be accommodated in such a small district unless its population were small, or, unless the number of individual families were few.

According to the deed, three of the eight native signers were considered as "chiefs." If we are correct in the assumption that the territory concerned is that of a local group, then it would seem permissible to deduce that these three so-called chiefs were probably members of the Council of Elders, who, because of their outstanding influence over the affairs of their local group, were designated as chiefs by the whites who drew up the phraseology

³⁰ *Ibid.*, 55.

³¹ Dawson, *op. cit.*, facing p. 112.

of the document and who probably did not understand the Australian local group organization.

It seems certain, however, that these three "chiefs" were not acting in a tribal or local group capacity in this transfer of land, but were acting, in reality, as the several proprietors of their own individual territories. In witness to this, we have the signatures (marks) of the five other natives who likewise gave their lands for the prescribed consideration. If the three "chiefs" were acting in any corporate capacity for their group, the additional signers would not have been necessary, and the wording of the document leaves little doubt, that in their pertinence to the actual sale of the land, each of the eight was considered in the same capacity. We must assume, therefore—and this assumption seems logical when based upon a knowledge of this region, which, according to Dawson, was characterized by the ownership of strips of land by individuals—that this conveyance concerned the transfer of the titles of the individual properties of the eight signatory Australians. Individuality of ownership, it appears to me, therefore, could not be more forcefully depicted. All of the signers, it seems certain, should be regarded as individual owners and this claim would appear to be substantiated by the fact that the average holding of these aggregated territories would include hardly twenty square miles, or districts of less than two and one-half miles radius. Territories of such a limited capacity, it seems clearly evident, would certainly support not more than a single family group.

The fundamentality of land ownership in Australia is further evinced in another connection, that of the deep regard which an Australian holds for his birthplace.³² In some parts of Australia, the native mind has developed the philosophy that not only does the land belong to the humans, but also that the humans likewise belong to the land.³³ Ranch owners and explorers have experienced

³² Howitt, *op. cit.*, 82-83; E. W. Curr, *Recollections of Squatting in Victoria*, 244 (Melbourne, 1883); Spencer and Gillen, *Native Tribes of Central Australia*, 13.

³³ See Brown, *op. cit.*, 145-147: "It is impossible for a man to leave his local group and become naturalized in another. Just as the country belonged to him, so he belonged to it. Natives often express a wish to die and be buried in their own inherited hunting ground."

difficulty in forcing their native help to work on distant ranges or in country which does not fall within the certain boundaries of the native's habitat.³⁴ This keen respect for property boundaries, outside of which a native is afraid to wander, which has been retained in the face of European influence, certainly serves to emphasize the importance which this concept must have played in the mind of the aboriginal Australian. Wheeler has also indicated the profundity of this principle to the natives by showing that in Australia there existed no such thing as war for the sake of land aggrandizement.

From the foregoing information, it thus seems clearly evident that in many parts of Australia there exists or did exist a real property concept with ownership vested in the hands of the families or family heads. We may generalize a summary of the characteristics of the Australian family hunting territory system by the following points. It has been shown that

1. There is a concept of actual land ownership by individuals or families.
2. A family hunting territory is enclosed by well defined boundaries.
3. Trespassing is forbidden (with certain exceptions).
4. A district is inherited from father to son.
5. Ownership is realized to such an extent that a proprietor may dispose of his land as he chooses.
6. The family districts are patrilocal.

There is no doubt in my mind that this system, noted in so many localities in Australia, was, at one time, much more widely distributed than has been reported. It seems logical to believe that an institution characterized in such a uniform and consistent fashion in so many separated places certainly should have existed in those districts which lie intermediate to the ones in which it has been noticed. A factor of importance which must be neither overlooked nor underestimated is the possibility that the family hunting territory system may have escaped, in many cases, the attention of investigators, who for one reason or another did not

³⁴ B. Threadgill, *South Australian Land Exploration, 1856-80* (Adelaide, 1922), 107. The author reports that "the individual native who rigidly respected the hunting grounds of his neighbor, and refused to break the barriers at a white man's bidding, was perhaps the greatest misfortune, as it was the most exasperating feature of most Australian exploring work."

enter into this field of inquiry. To realize the validity of such a surmise, it is but necessary to turn our attention to the Algonkian field in North America where, in spite of the fact that Europeans have lived in close contact with the Algonkians since 1607, it was not until 1914, or three centuries later that the existence of the family hunting territory system of this locality was called to the attention of ethnologists by Speck.

There are other indications, however, which also point to a once wider distribution of this system in Australia. For instance, Brown has reported that among the Kariëra

Although individual families did not possess their own tract of land, they quite often travelled together, apart from the rest of the group.³⁵

This condition may be indicative of a former existence of family plots and it may be that in other parts of the continent, where similar practices have been observed, these family districts did exist but may have escaped observation. After a thoughtful consideration of the entire subject, I would almost venture the opinion that the family hunting territory system exists or did exist in Australia in nearly all localities except where, after and only after a most careful investigation, its existence has been specifically denied.

A good example of conditions which might prove misleading to observers is indicated by Curr when he says:

But though in many cases we know that the lands of a tribe (local group) are nominally parcelled out among its members, it is the fact that they are used in common, and for several reasons they have always been so used.³⁶

This citation and other foregoing reports, therefore, serve to emphasize the varying degrees of intensity of the family hunting territory institution in Australia. We have noticed that in some cases the lands of the local groups were divided with complete partitionment between the individual families who occupied their own land to the complete exclusion of the other member families; Curr has informed us that in some cases, even though family ownership in land is recognized, the families often wander together

³⁵ Brown, *op. cit.*, 145-147.

³⁶ Curr, *Australian Race*, 1: 64; vide also Malinowski, *op. cit.*, 138.

over the territory of the local group; and Brown and others have mentioned cases where even though the ownership of lands by the families has been denied, the latter, nevertheless, wander by themselves over the territory of the group.³⁷ Is it not permissible then, on the basis of those reports which show the great variation of this system, to suspect that this institution, in part or in its entirety, may have existed in these certain localities at some time in the past, or else that it has been denied only because of the lack of detailed inquiry on the part of investigators? On the other hand, it may be true that in recent times, due to various causes, this culture complex, along with others, has passed out of existence.

A possible reason for the disintegration of this institution may have been the introduction of European diseases. These, in many cases, all but annihilated the native populations. It would seem, perhaps, not illogical to believe that a sudden extermination of a great proportion of a native group might possibly weaken, if not absolutely destroy, a concept of ownership which had been maintained in the face of a larger population.

Still another factor which should be taken into consideration, in this connection, is the relation between the period of the investigator and the existence of the native institution. For instance, it is assumed that the earlier the period of contact, historically speaking, the more aboriginal would have been the purity of native culture. Methodologically, therefore, other things being equal, it would seem orthodox to give more weight per unit to the information of the earlier writers, than to that of those whose investigations have been conducted in comparatively recent times.

Since the advent of Europeans native groups have rapidly decreased in population. Many tribes have disappeared entirely. Those which have not succumbed physically to the deadly diseases and weapons of the Europeans, have been influenced, nevertheless, in a cultural way. We can hardly expect to find in

³⁷ Although Brown has denied the existence of family or individual ownership of land for these people, he has spoken of natives who desired "to die and be buried on their own inherited hunting ground." See note 33.

native groups studied today, therefore, the same identical conditions which might have been noticeable, perhaps, one or two generations ago. Many native institutions, for reasons not easily discernible, appear to undergo radical changes when they come in contact with foreign culture traits. Such a transformation may have been the history of the land tenure system in certain parts of Australia.

Applying this principle, then, to our evidence, it is important to note that the denials of the existence of family or individual ownership in land have been made by writers whose investigations have been comparatively recent. For example, Spencer and Gillen conducted their investigations with the central Australians at the end of the nineteenth century, their publications appearing in 1898 and 1904. On the other hand, the long list of investigators, who have described so emphatically the ownership of land by the families and individuals, include practically all of the earlier writers of the century, viz., Grey, 1841; Eyre, 1845; Morgan, 1852, and the others whose works have been cited. This correlation of evidence with theory, it appears to me, although not conclusive in itself, certainly should be considered as a matter of some importance.

There may have been causes other than rational ones, however, which caused these individual family districts to become obsolete. A stronger local group consciousness, for instance, perhaps prompted by a class or totemic influence, may have contributed much in this direction. This reason may be of primary importance in Central Australia, for which region the existence of individual or family ownership has been denied, for there, as is well known, the class system and totemism have become highly intensified. The philosophy of the Alcheringa, in which the ancestors of a local group originated at certain places, the latter eventually becoming local shrines to the natives, also may have stimulated this local group consciousness and may have contributed to the degeneration and disappearance of the family plot.

On the other hand, it must also be remembered that the local groups, as I have repeatedly said, are no more than large paternal families and it may be that in certain parts of the continent the

historical development of a local group from a smaller family group, if such has been the case, may have taken place without the territory having undergone a partitionment into subdivided districts.

By way of conclusion, therefore, it seems to me clearly evident, as demonstrated by the data cited, that throughout a vast area of Australia, there once existed, before the advent of European occupation and its subsequent elimination of native institutions and population, a concept of real property ownership by the family and the individual. As we have seen, the family hunting territory system has been reported in the Northern Territory, Queensland, New South Wales, Victoria, South Australia and West Australia, and the characteristics, which have not always been reported in full from every locality, have been shown, in general, to conform to a single uniform pattern. From such a widely distributed and uniformly characterized institution, we may deduce two important points: first, that the family hunting territory system was at one time much more widespread in distribution than the reports have indicated, and secondly, that this system is of great antiquity.

In view of the evidence presented, therefore, I believe that sufficient basis has been established from the Australian field alone entirely to discredit Morgan's theory that all primitive nomadic hunters were devoid of any real property concept. Certainly, when the data from Australia and Algonkian America are jointly considered, this theory may, I should say, be discarded as disproved by actual facts.

UNIVERSITY OF PENNSYLVANIA,
PHILADELPHIA, PENNSYLVANIA

ECONOMIC ASPECTS OF INDIGENOUS AMERICAN SLAVERY¹

By WILLIAM CHRISTIE MACLEOD

CENTRAL AMERICAN SLAVERY

Debtor slavery.—In a collection of data on slavery in aboriginal North America elsewhere presented, the writer offered under the above category instances, covering virtually the whole continent north of Mexico, of servitude resulting from the staking of the person of one's self, one's wife, or one's dependents, by way of gambling; the selling of one's self for a lump sum of money, for a period, or for life; the pledging of the person of one's self or of one's dependents as security for a pecuniary obligation incurred through ordinary commercial transactions or as a consequence of theft, or of injury, intentional or unintentional, to another's person or property. Staking of the person in a game of chance is the most widely diffused of these types. For regional distinctions the reader is referred to the paper mentioned.²

For the Maya of Yucatan we have Cogolludo's word for it that a person is not enslaved for default in the payment of a commercial debt or of a fine, but his word is at least questionable; however, the debt or fine was usually paid by the relatives of the debtor or offender, or by his liege lord. Thieves were enslaved pending restitution on the part of themselves or of their relatives; if no restitution was forthcoming, their enslavement was perpetual. He who sold a freeman into slavery was executed, and his wife and children were auctioned in the slave market by the state, some of the receipts of sale going to the injured parties, though most went to the state.³ In Mayan Nicaragua, a man might sell

¹ A paper by Dr. MacLeod on the Origin of Servile Labor Groups will appear in one of our forthcoming issues. EDITOR.

² Debtor and Chattel Slavery in Aboriginal North America. *AMERICAN ANTHROPOLOGIST*, n. s., 27: 370-380, 1925.

³ Cogolludo, *Historia de Yucatan*. Lib. 4, cap's 3 and 4. The lord or relatives paid "if the debt were incurred without malice." Enslavement of insolvent debtors is noted for the Maya of Guatemala. Consider the Aztec notes above. Whether

himself or his children into slavery, but the right of redemption seems to have attached.⁴ Among the Mayan peoples generally, a death sentence usually involved confiscation of property and the enslavement of the criminal's family.⁵ In Yucatan, a murderer under age was not executed, but enslaved. In Guatemala attempted rape was punished by slavery. Among the Pipile, and in Yucatan, any freeman cohabiting with another's slave was enslaved.⁶

Among the Nahuatl of the Valley of Mexico (Aztec), as among so many of the North American tribes, gamblers could take a loan, giving their persons as security. Prostitutes could sell themselves for a sum with which to buy finery. These two classes did not have to begin their servitude until one year after the date of their receipt of the money paid to them. Poor persons sold themselves, their wives, or their children, into servitude, in order to avoid starvation or uncertainty of subsistence. Parents might pawn or sell a son, but were permitted to substitute another son for him at any time. Gomara says, but admits that others deny it, that the son (or the wife, in absence of a son) of an insolvent debtor, might be enslaved by the creditors of a man deceased. Torquemada writes ironically (as does also Cogolludo on the same subject, for Yucatan of the Maya) that the "Christian" Spaniards introduced this debtor slavery into the New World, and that it was not an indigenous custom of the "gentle" Indians. On this enslavement in case of insolvent debtors we must, therefore, remain in doubt.⁷

this means that the slave status would be hereditary or not is a question. It seems that, as appears to be the case in northwestern North America, a person taken for commercial debt became a transferable chattel, probably with hereditary status. (See Herrera, *Historia General*, Dec. 3, lib. 4, cap. 7). In Nicaragua he was permitted to compensate the injured party and go free, only with the consent of the state. (*Ibid.*).

⁴ Las Casas, in Kingsborough, *Antiquities*.

⁵ Oviedo, *Historia General*, 4: 51, 54; Herrera.

⁶ For additional reference on the Maya see Herrera, Dec. 4, lib. 2; Palacio, *Carta*, 80-82; Oviedo, 3: 229-230; Peter Martyr, *De Novo Orbo*, Dec. 4, lib. 2.

⁷ Gomara, *Historia*. Torquemada, *Monarquia Indiana*; Las Casas, *Historia Apologetica*, in Kingsborough, *op. cit.*; Clavigero, *Storia*. All of these writers on early Central America have special chapters on slavery. In their discussion of Aztec prisons

We note now two types, among others of what I have chosen to categorize as "debtor slavery," which are peculiar and significant. The Nahuatl had what they called *huehuetlatlacolli* ("Ancient Servitude"). When a family, or several families, were destitute, they might collectively sell a son to some noble, and bind themselves to "keep him alive"; that is, to perpetually furnish, from generation to generation, one of their number as a slave for the lord and his lineage. This slave usually lived with his own family (freemen), as was usually the wish of the master, because in the contract it was always provided that if the slave died in the master's house, or if the master took any property belonging to the slave personally, the contracting family or families would not have to continue furnishing a servitor to succeed the deceased. In 1505-6 there was a great famine in the Valley of Mexico. King Nezahualpilli, of Tezcuco, considering the possible evil results from many families agreeing to *huehuetlatlacolli* contracts in order that they might get food, forbade the making of new contracts and declared all old ones null and void. It is said, but the fact is in doubt, that Moctezuma II, the last king of Tenochtitlan (Mexico City) shortly afterward followed suit.⁸

This is a very aberrant type of debtor slavery, if it may be categorized as slavery at all, which, however, I think should be done. *The quasi-hereditary feature, for the Aztec, is peculiarly interesting. Such hereditary feature is again to be noted in the case of enslavement for the crime of treason.* Ixtlilochitl writes that the children of a traitor were enslaved *until* the fifth generation.⁹ With the crudeness of Aztec record keeping, such stipulations are

we note that debtors who refused to pay up were detained in the prisons designated for non-capital offenses. Prisons were places of detention, not of punishment, among the Aztec. What, then, were the debtors being detained for if not, perhaps, for trial and enslavement? Civiado, Lib. 42, cap. 3, should be considered particularly in this connection.

⁸ Sahagún, *Historia General*, v. 2, lib. 8; Torquemada. Cf. Sahagún, v. 2, lib. 7. Brasseur de Bourbourg, *Histoire*, 1857-59, says that these contracts remained in force in Mexico City up to the conquest, however, he does not document this statement.

⁹ Ixtlilochitl, *Relacion* in Kingsborough, 9: 245. Ixtlilochitl is supported in this by others.

remarkable. Remarkable, moreover, because of *the apparent absence of any hereditary chattel slavery* among the Aztec.

Traitors themselves were executed. Besides their wives and children and unborn descendants for four generations, those relatives of traitors who knew of their plotting were enslaved if they did not inform. Other crimes were punished with enslavement. Plebeians were enslaved for disorderly conduct in public. Duran alone writes that murderers were not executed, but were made slaves *for life* to the wife and relatives of the murdered man.¹⁰ Persons guilty of selling into slavery any free person lost or kidnapped, without authority, were themselves enslaved. Anyone, save the owner's son, who hindered a slave, who was fleeing to sanctuary on certain feast days, was himself enslaved in place of the fleeing slave who was permitted to go free. Thieves over ten years of age were enslaved. A man was enslaved if he made pregnant another's female slave and the slave woman died consequent upon her pregnancy.¹¹

It is interesting to note as above that the Aztec, at least in the case of murder and theft, exempted juveniles of less than ten years of age from full responsibility for crimes committed by themselves, and that they had separate prisons for those guilty, respectively, of capital and non-capital offenses. Their penology was somewhat in advance of that of contemporary Europe and Asia. If an offender had injured the state—the case of the traitor and of the disorderly—he was auctioned off, and the proceeds went to the state treasury. If his offense was against persons, according as the offended persons desired, the offender was given to the offended as a slave, or the offender was auctioned off in the public slave mart, the offended being given the proceeds as compensation for injury received. The punishment of a penal slave was not considered to have begun until he had formally been delivered over to an owner.¹²

¹⁰ Duran, *Historia*, in Kingsborough, 8: 240-241.

¹¹ Torquemada says that some learned Indians told him that this was not true either in law or in practice; but he seems to have missed the qualification in the older sources "if the woman dies in pregnancy."

¹² On penal slavery see the authors above cited, particularly Las Casas and Torquemada.

For the Nahuatl we have data indicating that elaborate safeguards were thrown by the state over the rights of the various types of debtor slaves. A slave might not be transferred without his consent, until, in the presence of reputable witnesses, he had been warned two or three times concerning his laziness, disobedience, or about his running away, if he were guilty of those offenses. If he then continued undutiful, the owner was authorized by the state to collar the slave, and the slave was imprisoned pending his sale to another owner. The purchaser of a collared slave always inquired as to how many times the slave had thus been transferred for incorrigibility; after two or three of such transfers, the last owner was authorized to sell the slave for sacrifice if he so desired. Sales of slaves were usually made publicly, in the market, and always before at least four reputable witnesses. In the case of a person selling himself into slavery, the witnesses acted as conscientious arbitrators to secure a fair price for the seller.¹³

Chattel slavery.—Throughout the Americas, captives were the slaves of their individual captors, pending possible sacrifice or adoption. It seems that males, especially adult males, were those most generally sacrificed, while children and women were most likely to be adopted, or retained permanently as slaves. Among the Nahuatl of the Valley of Mexico it might seem that there was no chattel slavery at all; this, however, is merely due to the fact that virtually all captives were sacrificed. A captive, among the Aztec, was the personal property of the captor. Pending sacrifice, the captive was caged or imprisoned under care of the state; if the captive escaped from this prison through public negligence, the captor and owner was compensated by the state for the loss of his human property. According to Sahagun, captives who possessed unusual talent in some line might be bought by

¹³ See particularly Gomara. All of our informants speak of these provisions concerning the rights of slaves as if they applied to the non-hereditary chattel slaves of the Aztec (captives) as well as to the various types of debtor slaves. But captives were almost all sacrificed, and chattel slavery, therefore, had no real place in the Aztec social system; the safeguards are evidently such as have arisen to protect fellow countrymen fallen into a form of servitude from debt incurred commercially or through injury to another or to the state.

the rich and noble from their captors and used as domestic slaves instead of being sacrificed. Besides captives, the only other persons who might be used as human chattel and sacrificed were slaves (i.e., debtor slaves) who were incorrigible; and slaves "brought from foreign parts." We have note of this purchase by the Aztec of slaves from abroad for sacrifices, but *not* any note indicating that slave *labor* was sought in foreign markets; slavery apparently was not important economically.¹⁴

All of our informants state positively that there was no hereditary slavery among the Nahuatl; that the children of slaves were free.¹⁵ In the quasi-hereditary character noted as typical of certain types of debtor slavery above, however, it may be seen that their generalization is too sweeping, although true, no doubt, for the chattel slaves (captives).

Among the Maya of Yucatan, in contrast to the Nahuatl, only socially eminent captives were sacrificed; commoners were enslaved. Moreover, it has been recorded that "The children of slaves were slaves until they redeemed themselves, or were made serfs." This means that hereditary slavery obtained. Cogolludo, a secondary source so far as really pre-European days in Yucatan go, whose original sources have been lost, is our only warrant for concluding that Mayan slavery was hereditary. He does not state specifically, however, whether he means to refer to captives (chattel slaves) as well as to the various types of debtor slaves.

¹⁴ See especially Gomara. Las Casas, the Anonymous Conqueror, Relacion, (in Icazbalceta, Coleccion de Documentos, v. 1); and Sahagún, v. 1, lib. 1; all state that a captor had a *right* if he chose, to keep his captives as slaves, admitting, however that sacrifice was usually chosen. The sacrifice of a captive was a personal sacrifice on the part of the captor, the sacrifice, however, being made by the publicly maintained priests, at the temple. Motolinia, Carta (in Icazbalceta, v. 1), and Gomara, however, insist that *all* captives were sacrificed, Gomara adds, whimsically, that "they no longer had to eat, but to be eaten." It seems to me, in considering the nature of our sources, and comparative materials, that one tribe or city varied from another in these matters; that a captive was a slave; that in Mexico City all, or virtually all, captors, chose the spiritual benefit of sacrifice rather than the material benefit of slavery. See also, Sahagún, v. 2, lib. 1, lib. 9. It is Gomara who notes the purchase of foreign slaves for sacrifice.

¹⁵ It is apparently the quasi-hereditary slavery of debtors and criminals to which Sahagún refers in his work, v. 2, lib. 7.

The complexity of the Aztec institution of slavery leads us to suspect that Mayan slavery was equally complex, and to be unwilling to place much faith in the above-quoted simplicity of Cogolludo's generalization. At any rate, the children of slaves appear to have been sometimes, frequently or usually perhaps, absorbed into the lower classes.¹⁶

THE OCCUPATIONS OF SLAVES IN NORTH AMERICA

Of the Vancouver Island Nootka tribes, Sproat observes¹⁷ that:

In a tribe of two hundred men, perhaps fifty possess various degrees of rank; *there may be about as many slaves*; the remainder are independent members, less rich as a body than the men of rank, but who live much in the same way, the difference in position being noticeable only on public occasions.

The slaves were not evenly distributed property, however. For the Clayoquot Nootka specifically Jewitt¹⁸ wrote:

Only the king and chiefs have slaves, the common people being prevented from holding them either from their inability to purchase them, or, as I am rather inclined to think, from its being considered as the privilege alone of the former to have them, especially as all those made prisoners in war belong either to the king or to the chiefs who have captured them, each one holding such as have been *taken by himself and his slaves*. There is probably, however, some distinction in favor of the king, who is always commander of the expedition; for Maquinna had nearly fifty, male and female. in his house, *a number constituting one-half of its inhabitants*, comprehending those obtained by war and by purchase, whereas none of the other chiefs had more than *twelve*.

Sproat's and Jewitt's notes would indicate that Simpson's estimate that one-third of the total population of the upper north-

¹⁶ Cogolludo, lib. 4, cap. 3. Cf. Helps, *Spanish Conquest*, 3: 257. The phrase I have translated ends.—"hasta que se redemian, ó se hacian tributarios."

The limitations on the sale of slaves noted for the Aztecs are not noted for the Maya. In Yucatan, if a slave died or ran away soon after his sale, the purchaser was entitled to receive back a portion of the sales price. See Las Casas; Gomara; Herrera, Dec. 3, lib. 4, cap. 7; and Cogolludo.

¹⁷ Sproat, *Scenes and Studies of Savage Life*, 117, 1889.

¹⁸ Jewitt, *Narrative*, 139, 1815. Other evidence indicates that the head chief received a differential share of war booty. For context see MacLeod, *The Origins of the State*, 1924, where other notes on Maquinna, the king, and his slaves appear. There were about twenty houses and chiefs in the Clayoquot village, with about five hundred adult males. Cf. F. Densmore, *Makah*. *Smiths. Misc. Coll.*, 73: 121, 1924.

west coast was slave is, perhaps, rather exaggerated. Censuses taken between 1836 and 1846 indicate that at that time the percentage of the total population which was slave varied from about one-seventh among the southern Tlingit to about as low as one-twentieth among the southern Kwakiutl and Oregon coast tribes. Of course in the case of weak tribes, continually victims of slave raiding by large tribes, there would be few slaves, while powerful tribes after a period of successful wars might, perhaps, be as much as one-fourth slave, as indicated by Sproat (who lived long among the Nootka).¹⁹ These proportions make the northwest coast tribes of aboriginal America comparable in the economic importance of hereditary slavery, with the greater part of early colonial America, even with parts of the plantation regions of the south!

What, then, was the economic use of such a large proportion of slaves among peoples still in the Stone Age and without agriculture? Jewitt²⁰ writes for the Clayoquot:

Their slaves . . . form their most valuable kind of property. These are of both sexes being either captives taken by themselves, or purchased from the neighboring tribes, who reside in the same house, forming, as it were, a part of the family, are usually kindly treated, eat of the same food, and live as well as their masters. They are compelled at times, however, to labor severely as not only are all the menial offices performed by them, such as bringing water, cutting wood, and a variety of such things, but they are obliged to make the canoes, to assist in building and repairing the houses, to supply their masters with fish, and to attend them to war and to fight for them. The females are employed principally in manufacturing cloth,

¹⁹ See MacLeod, *Slavery in Aboriginal North America*. AMERICAN ANTHROPOLOGIST, 1925. This earlier paper was merely a study of distribution and its significance. For censuses see P. Kane, *Wanderings of an Artist among the Indians*, 457. 1846; Schoolcraft, *Archives of Aboriginal Knowledge*, 5: 700-701; Curtis, *The North American Indian*, v. 10, Appendix.

²⁰ Jewitt, 73. Cf. p. 59. Jewitt was himself a slave for three years. He acted as iron armorer for the king, and labored hard at gathering firewood at considerable distances from the village. Simpson, *Narrative*, 1841-42, considered slaves to have been cruelly treated. Most slaves on the coast were slaves by birth, he says. Jewitt's last phrase refers to the prostitution of slave women to the crews of American whaling vessels.

On rather large scale manufacturing by slaves see F. G. Swan, *The Makah*. Smiths. Cont., 10, 1869, citing Gibbs with references to facts of a decade before. On slaves as firewood gatherers see also particularly Swanton, *Haida Myths*. B. A. E. Bull., 29: 159, 1905.

in cooking and collecting berries, etc., and in regard to food and living conditions in general have not a much harder lot than their mistresses, the principal difference consisting in that these poor and unfortunate creatures are considered free to anyone. . . .

Sproat writes²¹ also of the Nootka, that slaves did mostly women's work, and women's work he describes as follows:

The women do all the work of the camps, prepare fur skins, collect roots and berries, take charge of the fish upon the canoes reaching the shore, manage the cooking, and prepare food for winter. They also make mats, straw hats, and capes wreaths, and ornamental niceties of grass and of cedar fiber. I have met women in autumn at four o'clock in the morning staggering under a great burden of cedar bark.

Of the Chinook of the Columbia river, Curtis²² noted the following:

Male slaves were used mainly to paddle the canoe of the master, and in fishing, hunting, and carrying wood; and occasionally as assassin and in avenging wrongs. Female slaves were the drudges of the women, digging roots, gathering berries, curing fish, and carrying water.

We may now appreciate the attitude of a Kegarnie chief²³ who was asked if he cared to visit America or England:

He answered "No." as he considered we were slaves—even our chiefs—who were always doing something from necessity, and as we were always at

²¹ Sproat.

²² Curtis, 8: 88. For further use of slaves in war, mainly as paddlers of the war canoes, however, see Kotzebue, cited in Bancroft, *Wild Tribes*, 1: 108; Boas, *Tsimshian Mythology* (B. A. E. Ann. Rept., 31: 45, 230, 361, 400, 434). For further reference to slaves going hunting for their masters see Swanton, *Haida Myths*, 273-274, and Emmons, *The Tahltan Indians* (Univ. of Penn. Publ. Anthr., 4: 29, 1911). For slaves as paddlers of canoes on long trading expeditions, see Boas, *Tsimshian Mythology*, 434, and, for the Aleut, L. Petroff, *Alaska* (U. S. Census Report, 10th Census, 8: 152). Hill-Tout, *Salish and Dene*, 163, 1907, says of the slaves of the Salish of the coast that "Every family of distinction had its own body of slaves, male and female. These did all the rough, dirty work, such as keeping the house clean, fetching water, and carrying firewood." Cf. on the same, Boas, *The Lkungen*. *Brit. Assoc. Adv. Sci.*, 570, 1890.

For slaves used as assassins by their masters see further Simpson, 1: 211, 242, for the Tlingit and Tsimshian; and Swanton, *Haida Myths*, 273-274, for the Haida.

Slaves were also used as messengers by their noble and chiefly owners.

Kane, 175, describes the use of his slave by Casenov, a Chinook chief, to execute the desecrator of a grave.

²³ Dunn, *Oregon*, 193. Sproat, 95: "An active female slave, however, is more valued than any wife *who does not bring riches or powerful connections*, for the slave cannot leave the master's service."

work for a living. "I have slaves," said he, "who hunt for me, paddle me in my canoes; and my wives to attend me. Why should I wish to leave?"

In the agricultural eastern woodlands, where only the non-hereditary enslavement of captives obtained, it is unlikely that slaves ever formed any very important part of the labor of the community. Yet there existed some intertribal trading in slaves, and there is little doubt that the value of the slaves bore some relation to their surplus production—apart from their prestige value. Slaves were used in maple-sugar making, wild rice gathering, fire-wood collecting, water carrying, in servile attendance on hunting parties, and even in the hunting itself. They served as paddlers and carriers for native traders.²⁴ They also worked in the fields and gardens, not alone among the southeastern tribes but among the Iroquois. De Soto found captives with feet mutilated (just as the Iroquois, even in the eighteenth century, mutilated the feet of their slaves), very extensively used in the Southeast as farm workers, and much in demand for this purpose.²⁵ This, De Soto's party, it would seem, first noted among the Creek:

What is something remarkable, the Spaniards found in the villages which were subject to the lady of Cofaciqui, many slaves—Indians of other countries whom those who went hunting and fishing had made prisoners. These slaves served to cultivate the lands, and had been very badly treated to prevent them from escaping. *Some* had the tendons of their insteps cut, and *others* that of their heels.

As on the northwest coast, in the southeast it was considered seemly for a chief to be attended by a body of slaves, who, in off hours, could serve in the household. Bartram, in 1791, noted that the Creek chiefs were attended by enslaved captives. More than half a century earlier (1715) a writer²⁶ noted for the chief of the Coweta Creek that:

²⁴ W. J. Hoffman, *The Menominee*, 1896; La Hontan, *Voyages* (2nd ed., 1725), 1: 9; 2, 43, 49. Cf. *The Jesuit Relations*, 63: 77, 1653.

²⁵ Garcilasso, *La Florida* (B. Shipp's translation in *De Soto and the Conquest of Florida*, 1891, Dec. 1, lib. 3, cap. 17). Cf. MacLeod, *Slavery*, and Lawson, *Carolina*, 307, on Iroquois use of slaves. Cf. Garcilasso, Dec. 1, lib. 2, cap. 2, on Ortiz' work as a slave; also Dec. 2, lib. 1, cap. 11, lib. 2, cap. 7, and lib. 3, cap. 4. for Garcilasso on the desire for captives to use them in field labor, and for further notes on tendon cutting—which appears to have been general in the southeast.

²⁶ Anonymous French author in Swanton, *Early History of the Creek Indians*. B. A. E. Bull. 73: 225, 1924.

He has numbers of slaves who are busy night and day cooking food for those going and coming to visit him

In 1540 De Soto's party noted the same use of enslaved captives as attendants among the Creeks and their neighbors. Every noble, even when a youth, had his retinue; even, it seems, before he had taken captives himself. Natchez nobles, however, had certain freemen assigned to them as servitors, instead of slaves.²⁷

INDIGENOUS AMERICAN SLAVE TRADE

Slave raiding.—Slave raiding (European influence aside) was a practice widespread on the North American northwest coast, a region where slavery was of much greater economic importance than elsewhere in the Americas. Not satisfied merely with breeding slaves, or enslaving captives in the ordinary course of wars of blood revenge, groups all along the coast and the adjacent plateau frequently made offensive war expeditions against weaker groups, primarily with the object of getting captives to sell in the intertribal slave trade. Hill-Tout writes for the coastal Salish,²⁸ for example:

They made slave raids on one another. . . . These wars were usually very small affairs and might properly be called forays. Bands of the younger, more restless, and more warlike men of the tribes would go off at times in their canoes and surprise some distant and unsuspecting settlement, kill such men as offered resistance, and carry off the others with the women and children and sell them to their wealthier, stay-at-home neighbors.

Of the Tcilquek in particular²⁹ he noted that:

²⁷ See Garcilasso, Dec. 1, lib. 3, cap. 12; lib. 2, cap. 23. MacLeod, *Origins of the State*, 85.

²⁸ Salish and Dene, 164, 1907.

²⁹ The Halkomelem Tribes. *Brit. Assoc. Adv. Sci.*, 357, 1902. Cf. Siciatl, *ibid.*, 1904.

W. C. Grant, Vancouver Island. *London Geographical Soc. Journ.*, 27: 296, 1857, mentions slave raiding. Jewitt, 121, describes a slave raid on a large scale. Forty canoes of the Clayoquot carried five hundred warriors and the party completely destroyed a village fifty miles down the coast. Cf. the war party in Sproat, 195. S. Powers, *The Indians of California* (Smith. Cont., 1: 65, 1866), describes the practice of the Tolowa of frequently raiding the Yurok with a view to obtaining ransom money for the captives.

The *siam* would generally discountenance these forays; but as in every other tribe there were . . . some restless venturesome spirits. . . . Some times these war parties were never heard of again, being ambushed or slain by the way. . . . The captives they would sell to the more timid and less venturous of the tribe and thus enrich themselves.

Sproat³⁰ writes that the Vancouver Island tribes raided the Salish of the Sound, and one another, to sell to the Nootka of Cape Flattery (Makah)

who are great promoters and supporters of this hateful commerce. Being comparatively rich and numerous they induce the larger Vancouver tribes to attack the small neighboring tribes on their shores and capture persons fit for the slave market. Some of the smaller tribes at the north of the island are practically regarded as slave-breeding tribes, and are attacked periodically by stronger tribes who make prisoners and sell them as slaves.

We recall that the kidnapping of free persons in time of peace in Central America was a serious penal offense, punishable by enslavement of the offender and all of his family. No such safeguards surrounded the stranger, apparently, on the northwest coast of North America. Kane³¹ writes:

On the coast a custom prevails which authorizes the seizure and enslavement, unless ransomed by friends, of every Indian met with at any distance from his tribe, although they may not be at war with each other.

This, of course, did not include traders and others on more or less official business, and, if Kane had given details, I presume it would turn out to appear merely a punishment for trespass.

Contact with the slave-holding and slave-trading Europeans stimulated slave raiding among the natives of the Eastern Woodlands in the early days of European contact. But, there is no doubt that slave raiding of a sort obtained here also, indigenously, apart from European influences, though it was certainly of less moment culturally or economically than on the northwest coast. Marquette,³² for example, among the Illinois in 1673, before this people had made any direct contact with the Europeans, and before they had any fur traders among them even, wrote of them that:

³⁰ Sproat, 92.

³¹ Kane, 214-215.

³² Marquette, in Shea, *The Discovery of the Mississippi*, 32.

They are very warlike and formidable to distant nations in the south and west where they go to carry off slaves which they make an article of trade, selling them at a high price to other nations for goods.

Grignon's recollections of this region reached back to about 1690 and earlier, and are therefore of value in disclosing institutions before the day of notable European influence; he writes³³ of the Indians of Wisconsin:

During the constant wars of the Indians, several of the Wisconsin tribes were in the habit of making captives of the Pawnee, Osages, Missouris, and even of the distant Mandans, and these were consigned to servitude. I know that the Ottawas and Sauks made such captives, but am not certain about the Menominees, Chippewas, Pottawattomies, Foxes, and Winnebagos. *The Menominees, with a few individual exceptions, did not engage in these distant forays. They, and probably other tribes, had Pawnee slaves which they obtained by purchase from the Ottawas, Sauks, and others, who captured them.* But I never knew the Menominees to have any by capture, and but few by purchase. . . . Of the fourteen I have known personally, six were males and eight were females, and the most of them were captured while young.

Among these tribes of the lakes, and later, among the Europeans of the lake region who made some use of Indian slaves in their households, Indian slaves were known generically as Pawnees (Panis), although they were in fact of Mandan, Missouri, Osage, and other tribal origin, very few of them being actually Pawnees.³⁴ This, of course, is very much of the same sort of coincidence by which slaves in Europe were called after the racial term Slav.

The possible economic loss from the running away of slaves no doubt had its effect in stimulating the development of the slave trade. In the absence of active intertribal trade it would appear that those captives who were taken from remoter tribes were more likely to be those who would be selected for enslavement than for sacrifice; those taken from near-by tribes, even though their feet were maimed, would find it much easier to escape home. This is indicated, for example, in the fact that, in 1676, the Iroquois sacrificed all of the many captives taken from the proximate Mahickan tribe, but in the same year fifty captives

³³ A. Grignon, *Seventy-Two Years Recollection of Wisconsin*. Coll. Hist. Soc. Wis., 3: 256, 1857.

³⁴ Grignon, 257.

taken from a tribe two hundred leagues away were "granted their lives *because they destine them to work in their fields.*"³⁵

The trade.—The northwest coast was probably a region of much more active and voluminous intertribal trade than any in America. Wealthy commoners, as well as chiefs, engaged in the trade. In their great forty-foot war and trade canoes they paddled hundreds of miles in single trade expeditions. Slaves were one of the many commodities carried. A certain amount of intertribal trading in slaves was necessary to effect the distribution of those taken in raids definitely with the object of selling; on the other hand, slave raids were motivated partly by the knowledge that the booty could be profitably disposed of in the existing intertribal slave trade. The principal cause behind the slave trade, it would seem, was the desirability of getting captives as far away from their homes as possible; first, because if this were not effected, the captive's relatives would constantly attempt his recapture, and second, the nearness to home would tend to keep the captive restless and eager to run away or to attempt the lives of his masters, jeopardizing the safety of the owning tribe.³⁶

The northwest coast intertribal trade in slaves seemed to follow much longer and more regular and deep-cut social channels than the trade in other commodities, largely, no doubt, because of the preference of flat-head tribes for round-head slaves and vice versa³⁷; possibly, also, for another reason with note of which we will conclude our remarks.

The plateau of Oregon and Washington, and northern California were regions marginal to the hereditary slave area of the northwest coast. The tribes of these areas being little interested in keeping slaves themselves, were always active in raiding their neighbors to the east and south to get captives whom they might sell to the Chinook in the great intertribal mart at the Dalles on

³⁵ Jesuit Relations, 60 185, 1676.

³⁶ Swan in *The Makah* (Smith. Cont., p. 10, 1867), writes for the Sound tribes that "it was said that slaves born in the tribe would be sure not to run away; others attempt to escape to their relatives." Gibbs, 188, points out some of the dangers of holding captive those of near-by tribes. See further above.

³⁷ See, for example, the Report of the Commissioner of Indian Affairs (Washington, 1857), 327.

the Columbia river. The Klamath and Shasta of northern California even sold their own children into this slave market—a habit which they share with the Ute but in which they are in contrast with, say, the Carolina tribes of the East.³⁸ The Yakima took captives from the Nez Percé; the Modoc and Klamath often joined forces to raid the Achomawi of Pit river, and these Achomawi became, like the northern Nootka tribes mentioned by Sproat, virtually slave-breeding groups, without power to resist their aggressors.³⁹

Concerning the Chinook, the traders *par excellence* of all tribes below the Tsimshian, Dunn⁴⁰ writes:

These Indians deal in slaves purchased from the southern tribes, the original kidnappers, and then sell them at a profit to the northern tribes who come down to purchase them.

Strong⁴¹ writes:

In olden times the Chinooks dealt very largely in slaves. Trading as they did with the inland Indians who were much of the time at war with one another and making slaves of their prisoners, and desired a market which would take these slaves as far as possible from their native country, the Chinook had a fine opportunity to purchase and bring these slaves to the coast. These they sold to the tribes both north and south, realizing a handsome profit, and became the wealthiest nation of the region.

Kane⁴² adds that the Chinook, while usually they brought rather than raided, sometimes warred themselves and took prisoners. Curtis⁴³ writes of the upper Chinookan tribes that.

They secured the majority of their slaves from the Wasco and from the Klamath, who brought Paiute and Modoc captives to the intertribal mart at the Dalles

While captives and slaves of north California and the neighboring plateau moved down the Columbia river and in general

³⁸ Cf. Lawson, *Carolina*, 1715. Gatschet, *The Klamath*. *Smith. Cont.*, lxii, 1887. Kane, 181. Bancroft, *Wild Tribes*, 436.

³⁹ Gatschet, 16, 59–60, 62. Lewis, *Oregon Tribes*. *Mem. Am. Anthr. Assn.*, 154, 1915. Curtis, 7:14. Francheres, *Narrative*, 241, 1854. Gibbs, 188. Powers, 254–255, 267.

⁴⁰ Dunn, *Oregon*, 184.

⁴¹ Wah-Kee-Nah and her People, 1893.

⁴² Kane, 181.

⁴³ Curtis, 8: 93.

northward to the Sound and above, others flowed southward in exchange from the Sound.⁴⁴ Some note of this southward movement we have already made.

This reciprocal movement appears also north of the Sound. The Kwakiutl raided the "more timid and less war-like Salish tribes of the Frazer River delta"⁴⁵ Kane⁴⁶ writes concerning Saw-se-na, a Cowichan chief of southeastern Vancouver island, that:

In his young days he took many captives, whom he usually sold to the tribes further north, thus diminishing their chance of escaping back through a hostile country to their own people. the northern tribes making slaves only of those living south of them.

The Tsimshian appear to have been of great importance as middlemen, buying the southern slaves who were sent up from the region of the Sound, and selling them to the Haida, who passed them on to the Tlingit, the Haida, however, doing some raiding on northern Vancouver island on their own account. Ft. Simpson, located in Tsimshian territory, was in the center of this mid-coast trade activity,⁴⁷ and the native settlement about there as an aboriginal trade mart ranks with the Dalles on the Columbia. From the days of discovery by the Russians, it was noticed that the tribes of the north, who made use of the labret but did not flatten the head, usually had slaves from the south whose heads were flattened.⁴⁸

It is an interesting commentary on the generally observed fact that the tribes of the bleak and barren plateau of northern British Columbia and Alaska were innately peaceable and timid, that in contrast with the tribes of the plateau of the Oregon region who fed the Dalles slave market, these northern Plateau tribes not only did not furnish any captives to the coast markets, but that the few slaves they did hold frequently were bought from the coast tribes, sometimes, however, in exchange for captives which they did take.⁴⁹ The existence, furthermore, among the northern

⁴⁴ Gibbs, 188. Swan, Makah, 10, 31, Swan, The Northwest Coast, 166, 1869.

⁴⁵ Boas, Halkomelem. Brit. Assoc. Adv. Sci., 526, 1892. Hill-Tout, 163, 1907.

⁴⁶ Kane, 220.

⁴⁷ Niblack, Indians of Alaska. Smith. Rept., 338, 1888. Emmons, 29. Simpson, 127.

⁴⁸ W. H. Dall. Native Tribes. Smith. Cont., 427, 1877.

⁴⁹ Emmons, 29. Simpson, 127.

coast tribes of the sib, intertribally and interracially recognized as a social tie, making for the redemption rather than the enslavement of captives, in connection with the failure of the neighboring plateau tribes to bring supplies of captives to the coast, no doubt tended to make the volume of traffic in northward bound slaves greater than that of southward bound slaves. Such is indicated more or less definitely in most early observations, and such seems to be probable.

We have already noted the relative insignificance of the slave trade in agricultural North America. There appears also to have been relatively little in Central America. The town of Azcapuzalco, about nine miles from Mexico City (Tenochtitlan), located on the site of the former capital of the Tepanecs which was destroyed by Nezahualcoyotl, King of Tezcucó, in the fifteenth century, was the principal slave mart in the Valley of Mexico. Slaves were brought here from all of the provinces of the Nahuatl, a truly international mart. Traders took great care to guard their human property on the road to the mart, and when exhibited for sale the slaves were kept well fed and clothed, and forced to dance and look cheerful. One of the three principal groups of the international merchant organization of the Nahuatl nations, whose headquarters was at Tlatilalco, were the *Teyahualohuan* (slave traders). The sacrifices made in the month Panquetzaliztli, to the god Huitzilopochtli, by the merchant bodies were of slaves brought to the market of Azcapuzalco.⁵⁰

For the Maya of Yucatan and Nicaragua, Landa⁵¹ writes of Ulua and Tabasco as cities to which slaves were brought from great distances, along with other goods, to be exchanged for the native cacao and copper money; and Cortez writes as if Acalan were a slave mart of some importance.⁵²

The price of slaves.—It is already obvious that aboriginal American slaves produced enough for their keep and a surplus

⁵⁰ See especially Sahagún, *Historia*, v. 1, lib. 4; v. 2, lib. 9, on the feasts of the merchant guilds. Acosta also speaks of the slave merchants of Cholula.

⁵¹ Landa, 129.

⁵² In his last letter to the Emperor. (See Mac Nutt's translation.)

besides. The prices paid for them would roughly indicate the value of their surplus. Swan⁵³ said that about 1860 the prices of slaves varied from twenty to one hundred blankets or their equivalent—the standard blanket at that time being equivalent to five dollars in the American money then obtaining currency through the American fur trade. Some slaves brought a price greater than this equivalent of five hundred dollars, “and not infrequently a valuable canoe is added to the bargain.” Dunn⁵⁴ says that here the most highly prized slave would be one who was “*a full-grown, athletic slave who is a good hunter.*” In 1879 Euro-American suppression of slave raiding and slave trading, successful in a measure, made slaves scarce among the Indians, and a good slave then among the Haida would bring two hundred blankets, the trade equivalent of one thousand dollars.⁵⁵ Some indication of the nature of price variation is in Gatschet’s note that at the Dalles in 1857 a California captive woman would sell for five or six Cayuse ponies; a boy, for one pony.⁵⁶ This price for slaves at the Dalles would increase as they passed down the Columbia and northward along the coast to their ultimate consumer. Sproat writes that on the coast each powerful tribe insisted on acting as middlemen between adjacent tribes and taking a profit for their function; therefore “the price of a slave increases at each stage as he is conveyed along the coast to the best market.”⁵⁷

The data available on prices in connection with the data on the percentage of the slaves to the total population, distinctly suggest that slavery on the northwest coast among the natives was of nearly as much economic importance to them as was slavery to the plantation regions of the United States before the Civil War.

⁵³ Swan, Northwest Coast, 166. Cf. Emmons, 29.

⁵⁴ Dunn, 184. Cf. Sproat, 91–92 of appreciation in the price of slave women consequent on their use in prostitution to the whites.

⁵⁵ Dawson, Queen Charlotte Islands—Smith. Cont., 132, 1879.

⁵⁶ Gatschet, p. lx; cf. Curtis, 7. 191. Horses were scarce and valuable in the region at that time.

⁵⁷ Sproat, 92. Cf. on all the above, Kane, 236, 239; Jewitt, 63, Curtis, 9. 91. It is necessary to take account of the fluctuations in the value of native shell money and in the difference of value of different length dentalia in a fathom.

Incredible as this may seem, it seems very definitely indicated by all the facts.

As we might expect, due in part to the fact that in agricultural North America the progeny of slaves were free, the slender data available on prices indicates that slaves were of considerably less value than on the northwest coast.⁵⁸

WHARTON SCHOOL,
UNIVERSITY OF PENNSYLVANIA

⁵⁸ Cf. Grignon, 257; Landa, 129, La Salle in Swanton, Indian Tribes of The Lower Mississippi (B. A. E. Bull. 43: 261, 1911). Among the Menominee a slave woman was worth one hundred dollars in Grignon's time. Among the Aztec a self-sold debtor slave was worth twenty mantels, which were worth one load of cotton cloth.

CHRISTMAS FIESTAS OF THE CUPEÑO

By PAUL LOUIS FAYE

INTRODUCTION

THE following notes were jotted down, somewhat at random, while among the Cupeño, about Christmas, 1919. The author's object on that trip was to secure linguistic data. Nevertheless he was out on the grounds practically every time some feature of the fiesta was in progress and found it difficult not to make a memorandum of what he saw. Little attempt was made to gain additional information about the fiesta. As native traits in the culture of the Cupeño are disappearing very fast,—it is doubtful if these fiestas will ever be given again—these notes are published, however incomplete and fragmentary they may be. Here is the specimen, as found.

The Cupeño are a small branch of the Shoshonean-speaking peoples of southern California. Their closest affiliations lie with the Serrano and the Cahuilla, neighboring tribes. Their former habitat was in the foothills below the San Jacinto range, at Kupa (Warner's ranch). In 1903 they were removed to Pala, their present location, near San Luis Rey mission. Their population to-day does not exceed 200 souls. Inter-marriage with whites and Mexicans is frequent.

THE FIRST FIESTA

We arrived at Pala, a few days before Christmas, on the 21st or the 22nd. That very night they told us at the Agency that the Indians were starting a fiesta. It was to be held at the house of one of the "party" chiefs. *Party* is the natives' English for our technical *clan*. We were there at 8.00 P.M. In the yard, at the rear of the chief's house, an empty space had been converted into a *wamkic*. This means in Cupeño the enclosure where, of old, chiefs used to gather the members of their parties. The *wamkic* there consisted largely of canvas walls reaching to a height of about eight feet above the ground. The pieces of canvas, old tents and wagon covers, were supported by a frame made of light

lumber, fairly straight sticks, and inch-wide water pipes. Benches and a few chairs had been provided. They were disposed to form a sort of V, the apex being occupied by the chief and another man.

The chief did not seem to officiate in any capacity. The active officer of the ceremony was the man at his side whom we heard referred to as the *kutvó'va'ac*, that is, "the one who is over the fire," the fire-tender, as the Cupeño themselves translated it for me. Between the branches of the V already described, there was a bonfire. The duties of the fire-tender consisted primarily in keeping that fire blazing. He used a shovel to move the logs. In olden times it was a long, straight stick. He also made speeches and led in the invocation that took place after each dance. When the Indians were still at Kupa, in the mountains, that same individual used frequently to officiate in the absence of the priest. If the priest was not there on Sunday to say mass, he would gather the Indians around the cross before the chapel and recite prayers for them. He also baptized and buried in a sort of officious way. He was really instrumental in organizing the ceremonies witnessed and stood up for the old ways. I remember seeing him run about from house to house, getting the women to cook food for the fiesta. Once, a woman refused to make the bread he asked for. He had brought the flour to her. Upon being refused he simply scattered all the flour outside and left with a well-tempered show of indignation. The younger generation seemed to think that really he overdrew a bit the note of unction and indulged himself in sanctimonious activities. He was the last among them to serve the fire in the ceremonial way.

To return to the scene of the fiesta, in addition to the benches, there were other seats in the shape of boxes and low stools, disposed on the opposite side of the fire. These were occupied by women. Only men sat on the benches. The space between them and the fire was the dancing ground. There were seats provided for the singers at the end of the branches of the V formed by the benches. There were three singers, an old man, the chief of another party, who sat on a chair, and two women on low boxes.

THE MEN'S DANCE

When we entered the *wamkic* the ceremony was in progress. Four men and a leader were engaged in dancing. They went in

single file, clockwise. Then they formed themselves in a platoon, two abreast and two deep, and for a while danced in front of the singers. Then they stopped. The singing stopped before they did, very abruptly. Then the dancers finished, in a sort of anti-climax to the singing, with deep sighs, almost suppressed grunts. Their step was on a sort of three-beat rhythm with strong *thesis* on the right foot. We counted four rounds of this.

After the last round of this dance a short speech was delivered by the fire-tender. He ended it with four deep exclamations, as though calling, and two deep sighs accompanied by an upward motion of his hand to the sky.

Tobacco was provided for the guests and participants. It was circulated in a saucer with mais paper. It is not well to use your own tobacco, I was told. It would be like bringing one's food to a house when you have been invited to dinner.

Dancing was resumed shortly afterwards. This was led by another man who donned a headdress of owl-feathers, consisting of a crown and two tufts, one on each side. The evolutions were similar to those we had witnessed in the first performance. The men danced clockwise and regularly formed themselves into a close platoon before the end of each accompanying song. First it began with five men; they were seven when it ended. I counted thirteen rounds. In a dance by the women I observed subsequently they also danced thirteen rounds.

The leader was very energetic, stepping in front of the singers, clapping his hands to excite them apparently to sing more loudly. He made set motions with his hands to the right and to the left, holding his arms rather close to his body. The individual step was the same as in the past performance. This again ended with a short speech from the fire-tender and the four yells and two sighs.

Then the women and most of the men left. Where the women had sat remained a collection of lard-buckets. These contained food. In olden times, of course, baskets were used. These buckets were taken by one of the men into the house. The food was to be cooked and eaten the next day in the afternoon. Men and women participate in that repast. It took place in the *wamkic* in the open.

A few men only remained sitting around the fire. They spoke

little and low. They smoked. We stayed a little while longer and left about half past nine. They bade us good-night.

THE SECOND FIESTA

A few days afterwards, about New Year's time, a second fiesta was given. The "boys" of the town had raised money among themselves, bought a beef and other food, hired two women to cook and two men to help, and made arrangements with a man to convert an unoccupied house of his into a hall of festivities. The dancing-ground was at the rear of the house. The *wamkic* intimacy was again secured through an improvised canvas enclosure. It completely surrounded the dancing-ground except for two entrances managed on either side of the house.

While the fiesta lasted, food was served to the guests at noon, in the evening and at midnight. The guests were formally invited to sit down and eat by one of the chiefs.

On the first night they danced in the same fashion as at the preceding fiestas. When the dancing was over, one of the chiefs, a very old man who had the reputation of knowing more songs than anyone else, took his turtle-shell rattle and began to sing. He intoned a song; the others took it up after him. A good many people remember songs, but they do not know how to start them. Not the words, but the music fails them. I left shortly after the old chief had started, as they told me it would be in no wise different from what I had observed on the preceding nights.

THE WOMEN'S DANCE

The next day, about 11:00 P.M., I heard that the women were having a dance of their own. In the *wamkic*, on the dancing-ground, I found six old women, "*las viejas*," plus two middle-aged ones conspicuous in high-heeled shoes, arrayed in a half-circle in a corner, singing and dancing. They sang in a low tone and danced in very sober fashion, without moving about much, merely raising themselves on their toes,—rather a spiritless performance. This dance is called the *pinaxwa*. They used to perform it also at the girls' initiation ceremony, presumably with appropriate songs.

I was invited to luncheon with the crowd. We had meat with cold gravy, potatoes, pie, stewed fruit, and coffee. There was very little animation among the guests. Conversation was at a low ebb.

In the afternoon there was dancing by the men. They danced in single file and at the end formed themselves in a platoon as on previous occasions. They danced anti-clockwise. Seven men participated. One of them acted the clown, walking in the ashes and pretending to fall over himself. The crowd was amused. An enthusiastic old chap danced barefoot. As religious fervor reached its pitch there was a gradual doffing of coats.

THE DANCE BEFORE THE FIRE

About eight o'clock in the evening I was again at the dancing-ground. The men danced for about an hour and a half. Their formations did not vary in any respect from those observed on the preceding nights. After an intermission of about half-an-hour, one of the men, a jovial-looking old Luiseño with the reputation of a gambler and a rake, took the rattle. A few quips passed between him and the crowd. He began to sing. Then the women came in. He urged them to come. They came dancing, back and forth, facing the fire, leaning toward the fire, eager and yet afraid to come. They came with knees slightly bent, their arms extended, their hands prone, in prolongation of their arms, as though they were going to dip into the fire. Their faces were lighted from below in the crude, artificial way of the stage. They came to the edge of the fire, hopped five or six times to the right, as many times to the left, then they rotated in a quarter of a circle toward the left. While describing this motion they stopped three times and each time, in falsetto, sang, *'eh!* These punctuating calls came out in quick succession, *eh! eh! eh!* filling a single measure, so to speak. First one woman came out toward the fire. They all cheered. Then other women joined her. They formed a line of about five or six tapering into little girls with pigtails.

The author distinctly remembers young married women taking part in that dance. It was not ascertained whether this was in any way a girls' dance. A similar women's dance was witnessed in Arizona, among the Tonto, I believe, by Miss Freire-Marreco. I am unable to trace her paper. Her account of the dance, very spiritedly written, left a distinct impression of the element of daring involved for the girls in coming out before the fire. If I remember well, only unmarried women took part in the dance.

SEEING THE DAWN

That night, the singing and the dancing lasted till about one o'clock. Then the people began to sidle away. Only a few men remained together with the old women who sang for them. Most of the men were still seated on a bench, facing the fire, half dozing. There also stayed with us a woman who had come from Temecula to play *peon* and was disappointed in her expectations, for no game had been arranged for that year. The three women singers were huddled up all in a heap, on the customary low stools. They kept going to the fire to get shovelfuls of burning coals to replenish the little *braseros* they had scooped out of the ground in front of them. This kept us mildly awake, each attending to his own little fire. Men and women alike smoked cigarettes. This somnolent intermission, the dead part of the night, lasted till about 2:30 P.M.

Then one of the men who was got up in a curious combination of straw hat, Prince Albert coat and overalls, pulled out a deer-hoof rattle, and the singing began anew. In the state of reduced wakefulness in which I was myself I found it surprisingly easy to fasten my attention on the words that composed their songs. These seemed to consist of two short verses repeated with varying stressing of the syllables. The framework, one felt, was music; the words were woven about it. What determined the end of a song from the point of view of the music, I cannot tell. They gave however the impression of a well-knit unit, with balance and a certain sense of climax or necessary close at the end. The man who sang knew his melody. There seemed to be no improvisation. Sometimes a man went uninterruptedly through a series of songs. When a man started a song, the others would listen for a while; then, having caught the lilt, they chimed in. This lasted till daylight when the old women left. The coming of dawn was duly noticed. Then they stopped, they finished their cigarettes, and the party broke up.

They call that custom of spending a "white night" *amaneciendo* in their Spanish. A good many of the songs sung on that night evoke mythical phases of the creation of the world. These songs are the property of clans.

PUTTING OUT THE FIRE

The next night, I was told, there would be "big doings"; they would "put out the fire." I came while the Reservation police officer, a native, was making a speech. The tenor of it was that the old ways were good for the old people, but the younger people had better think about something else. Men ought to attend to their fields, the women stop gossiping. The gesture was intended to be impressive. The party chiefs stood behind the speaker. The fire-tender stood a little apart, leaning on his huge fire-stick.

Then they "put out the fire." In the first round men and women formed a circle holding hands. I could not analyze their step. They merely ran in a lateral direction. They seemed to wind around the fire like a band. They formed a closed circle. They went around four times, alternating, now in the clockwise, now in the anti-clockwise direction. Only the old women sang. The men gave out a sort of muffled grunt.

Again, the second time the men and the women danced. They went around with alternate motions of their right and left arms towards the fire. While doing this they swung their bodies.

Only the men took part in the third round, the fire-tender leading them. They went around the fire with a winding motion. They wound and unwound twice each way. When they had got very close to the fire, at the last winding, they squatted on their haunches and put their hands on the burning logs. They went through this with grunts and shouts of contained excitement all the time. They were supposed to put out the fire. They kept slapping off the crust of glowing embers on the logs. The result was unconvincing. One of the men almost fainted. His relatives ran up to him, rather excitedly. The next day he was careful to assure me that he had not fainted.

Then the old women sang and danced for a little while. This was followed by the men's singing. The crowd was already dispersing.

CONCLUSION

These are only snapshots. They illustrate, I believe, the gradual conversion of these Indian communities to a type of social

life comparable to that of the village in southern Europe. The village fiesta is fast superseding the old type of festivity based on the exchange of courtesies between clans. Spanish and Catholic factors are no doubt at work. Parish consciousness, equal standing before the Agent, common schooling of children, all these forces are breaking up the old party spirit. This process is going on. Ethnologically, it is far from negligible. Reconstructions of the past are indispensable, but only as a background for the study of culture in its incessant, ever contemporaneous manifestations. They are only a means to an end, which is knowledge. Among the Cupeño we have an unusual case. Acceleration in social transformations has been promoted by the forcible way in which they were wrenched from their former habitat. The ethnologist seldom gets a chance to see an experiment in social disorganization under similar conditions of concreteness. A remarkable case, as physicians would say, and the patient dying.

UNIVERSITY OF CALIFORNIA,
BERKELEY, CALIFORNIA

ETHNOLOGICAL NOTES ON THE OJIBWA OF SOUTHEASTERN ONTARIO

By PAUL RADIN

Prefatory note.—The following notes were written down in text by an Ojibwa Indian not far from Sarnia, Ontario. They were translated by Mr. Edwin Maness. No change of any kind has been introduced by the editor. They originally were incorporated in a fairly extensive text, the major portion of which has been published in a previous number of the *AMERICAN ANTHROPOLOGIST* (n.s., 26: 491–530, 1924) under the title of “Ojibwa Chit-chat.”

CHILDHOOD

NAMING.—When a child is born the man and woman prepare some food and call for his relatives and for some old man to give a name to it. The old man lifts up the child and says, “This boy, I name before you. Thus shall he be called in the future by all men and women.”

When a girl is born the man and woman prepare some food and call his relatives and an old woman that she may give her a name. Then the old woman lifts up the little girl and says, “This little girl I name So-and-so before you. Thus she shall be called by men and women.”

When the child who was given a name by the old man is one year old, that is when (we say) his time is up, he (the child) takes a special kind of a stick, a stick that has some fire on it, and waves it toward the south. The child who was given a name invites his relatives and the old man who had named it. On this stick all kinds of things are hung—tobacco, ribbons, leggings, and a belt. All these things are presented to the old man.

Early childhood and fasting.—After the child stops nursing, the teeth begin to grow. When it is five years old a tooth comes off. Then the parents say to the child, “Rub some charcoal on to your teeth and run around the house once; then throw the charcoal towards the west and your tooth towards the east and then another tooth will come out.”

The parents say to the child, “This winter you must fast so that you may find out what is going to happen to you in the

future. For ten days you must not eat anything and you must not drink water. If you obey all that is told you during the fasting, you will be blessed. On the other hand if you eat anything during your fasting, the one who is out in the woods (i.e., the bogey) will see you and no (spirit) will come to bless you."

The child does as his parents have told him and then when he has finished his ten days' fasting an old man who understands something about fasting asks the child, "What did you dream of?" The child answers, "I dreamt that a man came to me and said, 'I give you this so that you may know anything you want to find out' and (he also said) 'You will also be able to bring your enemy where you are.' This is all he told me." Then the old man says, "Thank you. This boy will be a conjuror."

When a little girl is past ten years, that is when her people begin to love her. An older woman takes her to a (hidden) place and builds her a little tent where she is to stay for one month. During that time she will not see anyone except her mother. No man must pass near this little tent until the month is up. Then she may be seen again.

MARRIAGE

When an Indian is going to marry, the chief orders a kind of swinging tent to be built in a tree. When the new moon comes up that is the time they will marry. All the people living around come to the place so that they may see the two who are going to marry. When the time has arrived all those who have come see the two people get married. The two who are going to get married climb up into the swinging tent and they get married inside the tent, there before all these people.

DEATH

When a man or woman dies, then the widow or widower stays with her or his parents-in-law and puts on clothes that are ragged. They put down their hair and it hangs down for one year. Never will the man or woman comb the hair during that time nor will they comb it till their time of mourning is over. Then, at that time, the man or woman leaves the tent of the parents-in-law.

When a person dies all that he owns is put into the grave, and the one who has died leaves and goes where the dead people go, towards the west. The individual who has lost a loved one, feeds him frequently, putting the food as well as some tobacco in the fire.

MEDICINES

When an Indian makes medicine, he gets up early in the morning, takes tobacco and a pipe and smoking he says, "This medicine which I am going to make shall be blessed." Then he goes towards the east. He goes there and travels in the direction in which the sun goes, until he has gathered all the different medicines that are used. Then this medicine is good. The Indian who understands this medicine, can cure the people. He is always willing to give it to them.

Those who know much about medicines are able to make a medicine which will enable them to have fire come out of their mouth. After this medicine is finished, the man takes it and blows it into his hands and feet. Then he goes out at night and walks around. He puts medicine around his belly. Then he walks around and fire comes out of his mouth. No one is powerful enough to confront such a person.

When an Indian knows much about medicine he puts it in some place he thinks is beautiful. He thinks very much of his medicine. He also puts some silver in it and he uses it in different ways—for hunting, for fishing, etc. It is used at night.

When he goes visiting he uses medicine. Indeed it is good for everything. He also uses it on other Indians. He may, for instance, say something in a crowd. Then all the people who listen to him will be happy.

HUNTING

When an Indian is going to hunt he prepares his hunting-medicine and when he is about to start, he puts the medicine in the fire the night before and also in the morning. As soon as he kills a deer, he immediately gets the blood and throws it towards the east, the south, the north, and west, and he says as he throws the blood, "All birds do I feed."

FISHING

When an Indian is going to kill fish he makes a spear and goes around the river looking for fish. He also prepares fishing-medicine. He kills many fish. He goes fishing when the blueberries are ripe, for it is at that time that the sturgeon come out into the shallow water. Then it is that the man tells the people, "Tomorrow I shall go out to kill fish and whoever wants any can come out with me." So the next morning he goes out and kills the fish and the people go with him and return with all the fish they can carry.

PLANTING

The Indian plants corn, beans, and squashes in the summertime. He also kills white-fish. It is the woman who cleans them and dries them. The spawn of the white-fish are put into a kettle, and in this she prepares her bread.

The man kills deer and the woman cleans the meat and tans the hide. In this way the latter prepares for the making of the clothes, leggings, moccasins, and the thread that they use in the wintertime to make snowshoes.

FIRE MAKING

When an Indian wishes to make fire he goes and looks for a beech tree, and that is where he finds the stick. Then he looks for a cedar tree. Then he takes a piece of the cedar and bores a hole in it and that is where he places the beech stick—there in the hole of the cedar. He also places a little piece of the cedarwood there and thus the piece of beech is wedged in. Then he twirls the beech stick around fast so that the beechwood begins to catch fire.

TRAVELLING

When an Indian goes visiting and he has to paddle through a lake he gets ready in the following way. In the morning when he is to leave, he takes some tobacco with him and throws it into the lake saying, "Today it shall be calm." And when they are actually leaving and proceeding slowly along, the one who steers says, "My paddle, I hit the lake. All right, blow us *mānēnēg* (a fish)." So then they leave.

When an Indian wishes to travel in the wintertime before leaving he prepares his tent. He always takes his tent along with him. He boils some basswood bark and when it is boiled down he dries it and when it is dry he cuts it into strings and twists it. Then he makes it any length he desires. Then he gathers up some of the bulrushes and when they are dry he ties them up in a line until he thinks he has enough for one tent. Then he gathers some birchbark, enough to make a tent.

Then they leave. When people travel in the winter, one carries the tent and the others carry all the things they use. When they settle down at any place, some cut the vertical poles for the tent. Then they cover the top and throw the birchbark around it. They make the beds inside the tent. Then some make the fire and the tent becomes quite warm.

If a man who can run fast wishes to go after anything a long ways off, and if he has to travel on ice, he gets two deer shoulder blades and bores a hole in each, so that he can tie them to his feet securely. Then he says, "I'll leave now and go far away." He goes very fast. When he says he will return, the people go to look for him. They would see him far off. Soon he returns and brings what he had gone after.

SWIMMING BLADDERS

When an Indian is going to swim across a river or lake or bay, he uses life-savers. These he gets from a large fish. When he gets them, he ties them around half-way on his body and then he goes into the water, across the river or lake. He does not sink and always returns with that which he went after. These life-savers helped the Indians a great deal.

PREPARATION OF FOOD

1. *Sugar-making*.—When an Indian is going to make sugar he first makes the sugar-making medicine. In the morning when the sap begins to run, he walks around the whole sugar-camp, leaving from the east, and he walks around until he returns to the place from which he had started. He never allows any person to drink from the sap. When he boils the sap down he marks his

kettle, saying, "Well, that will be the depth of it in the pail." Then he takes the pail off.

2. *Cooking*.—When an Indian is out hunting and finds that he has no kettle for boiling his meat in, he takes the stomach (bladder?) of an animal and fastens it to a stick. Then he gets four sticks and puts them up in the ground. Then he starts a fire. He puts a little stick across the fire and takes the branch of a tree and twists it into the shape of a circle. On this he hangs the stomach (bladder?) of the animal. He pours water into it, meat and potatoes. Thus does he cook his meat in that stomach (bladder?).

Raccoon meat is also cooked. He first hangs the raccoon near the fire and there he also hangs a knife. The hair of the raccoon is not removed when put into the pail and it comes off after the raccoon has been boiled for some time. The raccoon is kept boiling till it is fully cooked.

3. *Bread-making*.—When an Indian wants to make bread and has no soda he gets a certain snake and cuts it up in the water. Then he puts the water to one side until it gets clear. Then he pours it out and makes the bread. He bakes it, and then the bread rises more than it does with soda.

If he has no salt he gets some water and boils it down until he gets the salt.

4. *Preparation of corn*.—When an Indian wants to make a (corn) pounding mill he looks around for a tree that will suit him. When he finds one, he cuts the tree edge off and makes a fire in the center. He burns the tree until it is the size of the borer. Then he looks around for a straight tree which is suitable for making a pounding stick. When he gets the pounding stick good and smooth he pours the corn in the mill and begins pounding.

After the corn has been pounded he takes the corn out and blows all the chaff away from the flour. Then he takes the flour of the corn and puts it in the pot to boil until it is almost cooked. Then he takes the pail off and says, "Already I have made the corn soup. Come all and eat it." Then all come and eat the soup.

When he wishes to boil some corn he puts meat in a pail and adds corn. This he then boils. After the meat and corn have

boiled together for some time he takes the food out and drains the corn. Then he puts it on again until it is sufficiently cooked.

VARIOUS USES OF THE BEAR

During the winter the Indian kills a bear and prepares grease out of its fat. This grease is used in the summertime. Out of its hide he makes blankets. But it is on deerskin that he lies. (After they have cooked all the bear meat, they look for some basswood strings and boil them. After they are well-boiled they leave them outside to dry. Then they tie them together on the inside and they paint some red, yellow, and some black. Thus they make beautiful bags.)

MAKING OF CLOTHES

When an Indian is going to make his clothes he looks for slippery-elm bark and when he finds it he peels off the bark. Thus he makes his thread. He makes it just the size he desires. Then he makes a needle. He gets a little bone from a deer's leg and bores a hole in it. This he whittles down till it is a little smaller. Then he threads it and sews his clothes and moccasins.

WEATHER PROGNOSTICATION

How an Indian knows what kind of a summer he is going to have: if the first thunderclap is isolated then he says, "Well, it is hopeless. It is going to be a bad summer. There's going to be war, sickness, etc." Then he starts to make medicine and takes great care every day. He is also very careful about his children. They are kept indoors as soon as the sun sets. No one speaks after that time. The next morning (after the single thunderclap), the old person gets up very early and sweeps all around the house, starting from the door. Then the children can go out.

How an Indian knows what kind of a summer he is going to have: when the first peal of thunder comes in the spring and it turns into a great storm and if the robin is around at the time, the man says, "It's going to be a good summer. There will be no famine nor sickness. The crops will grow well and there will be plenty of blueberries and plenty of honey and tobacco." So, therefore, the Indians will be happy and glad. They gather

together, young and old. The young men play games and so do the young women while the old people sit down and smoke, looking at their young ones.

How an Indian knows whether it is going to be warm or cold: he looks up into the sky and watches the stars and he says, "Tomorrow it will be cold." So the next day it will be cold. Otherwise it would be hot.

FLUTE MAKING

When an Indian wants to make a flute he looks for some red-cedar and cuts a piece off. This he whittles down and when he gets it into the desired shape he rubs it down with sturgeon's brains and puts it some place to dry. When it is real dry he blows upon it and it sounds good. He blows it just as he likes to.

HOW RELATIVES BEHAVE

When an Indian runs short of anything and sees that his relatives have plenty, he thinks of his totem, for the one who has much may be of the same totem, the bear, for instance. The needy person goes to the house of the rich one taking a bearskin with him. When he reaches his destination he throws the bearskin over to the rich (relative) saying, "He is very poor, your totem." So the man who has plenty gives the poor one clothes and food.

SICKNESS

When a man is sick he tells his wife, "I think I shall hire a conjuror." The conjuror arrives and says, "Prepare the tent, your little sticks, and also the canvas to go around it." Then the conjuror enters the tent. Then the manitos arrive, the little things, the skunk, the beaver, and the turtle. The turtle goes after the person who was going to kill the sick man and when brought before the conjuror, the latter says, "Leave this man alone, for if you do not, you will be killed."

CANOE MAKING

When an Indian wants to make a canoe he gathers some birch-bark and some cedarbark in order to make the ribs of the canoe. Then he uses the cedarbark to tie the ribs up and then he puts on

the birchbark. After he gets it all done he puts on the birchbark. Then he boils down the bark, chops it up fine, and puts it on the part of the boat where the seams are. In this way the canoe will not leak and will go very fast, both when one paddles and when one puts on a sail.

WARPATH

When an Indian goes on a warpath he calls for a feast and kills a dog and boils it. Only those who know many medicines are allowed to eat the dog. Those who know few are not allowed to partake of it. Such a person will not dance, nor will he be taken on a warpath. Only those who know many medicines go. At this feast they find out who are the brave men.

When the Indians are about to leave for the warpath, all the brave men have a dance. They all have their tomahawks with them. They dance before the sun for ten days. Before they leave they each take a spoonful of "soup," consisting of deer meat boiled down, and also a spoonful of smoked corn, boiled down. Then, for five days they will not be hungry nor thirsty. All they will do is fight.

The women who stay at home dance, saying, "My husband shall return and the children must not cry until the time for their return is up." Then when the men return, they all have a dance.

DANCES

A man wishes to give a dance for the women. He makes a drum and also two moccasins with beads on them. The leggings likewise have beads. He gets some ribbons. Four women put these things on and then the man makes them dance. He sings and he beats the drum while the women dance. These women look fine when they dance.

When a man wishes to give a dance for the men then they put on new moccasins, leggings, anklets, and have feathers on their head. They carry a tomahawk. The man who is making them dance sings and beats the drum and those who dance look fine. The sound of the bells on their ankles sounds well.

The man who is making them dance has them dance the dog-dance. They look fine at this dance.

Then the man makes them dance the snake-dance. He sings and shakes the rattle and the men who dance the snake-dance look fine. Then the man who is having these people dance says to those who are looking on, "Whoever wants to be smart, I will make him dance the way a pipe dances." So he hands a person a rattle and sings and beats the drum very slowly until he again changes the song and sings faster. Then the man starts to dance and holds the pipe against his back and shakes himself a good deal. His loins move a good deal. The men who watch him laugh greatly.

FISK UNIVERSITY,
NASHVILLE, TENNESSEE

NOTES ON THE DEPOPULATION OF ABORIGINAL AMERICA

By MAURICE G. SMITH

WHEN James Mooney died he left unfinished the bulletin on the aboriginal population of America which he had promised us,¹ and on which he had spent many years of research. However, a briefer statement embodying the chief results of his careful investigation, prepared by him about twenty years ago, has recently (February, 1928) been published by the Smithsonian Institution.² In a preface, Dr. J. R. Swanton tells us regretfully that little can be expected in the future from the notes which constitute the greater part of the material left by Mr. Mooney on this important subject.

But, as Dr. Swanton says,

Mr. Mooney's work does, however, supply a want long felt by students of the American Indian: a set of detailed figures that give an approximate understanding of the relative strength of the several tribes, an understanding of the Indian population of the region taken as a whole, and the approximate losses and gains of both.

Some 268 tribal groups (and in many instances allies and associates have of necessity been put together) are classified in nine geographical divisions in the United States. Only in the case of California is a tribal list omitted and a total given alone; but this deficiency has been remedied by Dr. Kroeber's statistics.³ Two estimates of population are given by Mr. Mooney for each tribal group in the United States, Canada, Alaska, and Greenland: (1) at the time of their first disturbance by white civilization; and (2) in 1907. For each section there is a discussion of the principal causes for the decrease of the Indians and in a few cases also, for the increase in numbers. It is needless to say, of course, that there is a good bibliography.

¹ Handbook of American Indians. B. A. E., Bull. 30, 2: 287.

² The Aboriginal Population of America North of Mexico. Smith. Misc. Coll., 80, no. 7.

³ Handbook of the Indians of California. B. A. E., Bull. 78: 880-891, 1925.

In going over this valuable material with my students I have had occasion to select for emphasis certain items which are included in the large body of figures printed and to retabulate some of the statistics. What I have done by no means exhausts the possibilities of Mr. Mooney's material. For example: by giving us an idea of the size of the tribes this paper sheds light on some phases of their organization. Furthermore, while one must beware of placing too much reliance on a term like *tribe*, which has and has had a vague and shifting meaning, nevertheless I believe that it is not entirely due to the method of collecting the statistics that we find certain areas characterized by groups much larger or smaller than in other regions.

It should be pointed out that the figures given in this posthumous essay are almost identical, so far as totals go, with those given by Mooney in the *Handbook* article on Population, published in 1910, but written, of course, earlier; perhaps about the same time as this essay.⁴

	<i>Handbook</i>	<i>Essay</i>
Continental U. S.	846,000	849,000
British America	220,000	221,000
Alaska	72,000	73,000
Greenland	10,000	10,000
Total, North of Mexico	1,148,000	1,153,000

(The *Handbook* gave the "present figure" as 403,000, a decrease of about 65 percent; this essay gives the population in 1907 as 406,506, or a decrease of 64.7 percent.)

The contribution which this paper makes to our knowledge is, however, very great, because it gives us figures for each tribe and section. From this detailed information we can learn, among other things:

(1) What correlation, if any, is there between the length of the period of contact with Europeans and the decrease in the aboriginal population of each section?

(2) Which were the large tribes in each region before the advent of the white man, and their fate?

(3) What proportion of all the tribes found by the first explorers and colonists are now extinct?

⁴ See Dr. Swanton's preface, 1

(4) Which tribes have held their own, with regard to numbers, during the historic period?

Although Mr. Mooney discusses the reasons for the great decrease in numbers which everywhere occurred, he does not take up the matter of correlating the length of contact with the phenomena of depopulation. In fact, there is apparently no great correlation,⁵ many and complex factors being involved. But this is not the place to go into the subject, and I merely present the figures (table 1) showing (1) the percentage of our aboriginal population surviving in each geographical area in 1907, together with (2) the date of the first great disturbance of native culture by the Europeans, or the date from which we first have information about the numbers of the Indians.

TABLE 1

<i>Area</i>	<i>1</i>	<i>2</i>
North Atlantic	39.4	1600
South Atlantic	4.2	1600
Gulf	54.8	1650
Central	61.0	1650
Plains, southern	7.0	1690
Plains, northern	50.0	1780
Columbia	17.3	1780
California	7.2*	1769
Central Mountain	60.0	1845
New Mexico and Arizona	74.8	1680
<hr/>		
Total United States	31.3	
Eastern Canada	50.0	1600
Central Canada	56.5	1670
British Columbia	29.8	1780
<hr/>		
Total Canada	45.7	
Alaska	39.0	1740
Greenland	110.0	1721
<hr/>		
North of Mexico	35.3	

* Because of a lower original figure, Kroeber shows 12.3 percent of the California Indians remaining in 1910.

⁵ For California, however, says Kroeber (*Handbook of the Indians of California*, 888), "it is clear that, in general, decrease of the native race is directly in proportion to immediacy and fullness of contact with superior civilization."

It is a matter of common knowledge, of course, that there was a great difference in the size of the Indian tribes, but Mr. Mooney's statistics show what is not so well known—that there were 28 tribal groups in the United States which had 296,000 members, or about 50 percent of the population (589,000) in all regions, excluding California.⁶ A list of these tribes follows (table 2), with the numbers they possessed (1) at the beginning of the historic period, and (2) in 1907:

TABLE 2

	1	2
Ojibwa (United States and Canada)	35,000	36,000(?)*
Sioux	25,000	28,000
Cherokee	22,000	25,000
Creek confederacy	18,000	13,200
Blackfoot	15,000	4,560
Choctaw	15,000	18,000
Coahuiltecan tribes	15,000	Extinct
Assiniboin	10,000	2,080
Pawnee	10,000	644
Powhatan confederacy	9,000	500(?)
Piros "province" Pueblos	9,000	60(?)
Caddo	8,500	555
Delaware and Munsee	8,000	1,850
Timucua, etc.	8,000	Extinct
Chickasaw	8,000	5,000
Illinois confederacy	8,000	50
Navaho	8,000	25,000(?)
Paiute, etc.	7,500	5,605
Apalachee	7,000	Extinct
Comanche	7,000	1,430
Osage	6,200	2,156
Montauk, etc.	6,000	30(?)
Papago	6,000	5,800
Iroquois confederacy, excluding Tuscarora	5,500	17,630
Tuscarora	5,000	700 <i>ca.</i>
Catawba, etc.	5,000	90(?)
Apache	5,000	4,500
Conestoga	5,000	Extinct
	296,700	198,440(?)

* Question marks after figures are Mooney's.

⁶ For California, as has been said, Mooney gives only totals for the population and no estimate even for the number of tribes. Kroeber reduces Mooney's figure

The devastating effect of white men and white culture upon the Indians, at least in the United States, is most strikingly illustrated by the large number of tribes which have been extinguished or nearly so. Of a total of 268 groups in this country, excluding California⁷ again from consideration, 87 groups are reported by Mooney to have been wiped out by 1907 and 67, nearly so.⁸ The extinct groups once totaled 129,250 members; the nearly extinct groups, 114,150, of which there were remaining in 1907 only 3,541 representatives. Thus, of a total aboriginal population of 589,000 in the 268 groups, 239,859 belonged to groups now extinct.⁹

TABLE 3

	<i>Number of tribes in region</i>	<i>Extinct tribes</i>	<i>Nearly extinct tribes</i>
North Atlantic	24	14	6
South Atlantic	35	20	14
Gulf	39	27	4
Central	12	2	1
Plains, northern	20	1	1
Plains, southern	12	5	0
Columbia	95	12	40
Central Mountain	6	0	0
New Mexico and Arizona	25	6	1
Totals	268	87	67

(Merriam's) from 260,000 to 133,000, divided among 45 tribal groups. But even in this region, there were nine groups with a population of 77,000 or 58 percent of the total. In 1770, it is estimated, the Pomo numbered 8,000; the Wintun, 12,000; the Maidu, 9,000; the Miwok, 9,000; the Yokuts, 18,000; the Costanoan, 7,000; and the Chumash, 10,000.

⁷ In California, according to Kroeber, 18 of 45 tribes are extinct or nearly so. And these 18 groups had a population in 1770 of 53,500, or 40 percent of the total of this area. In 1910 there were remaining in California 1,050 individuals of this great mass in these 18 tribes, or 2 percent of the total in 1770.

⁸ In 1914, of the 56 or more linguistic stocks north of Mexico, 8 had become extinct and 9 nearly so. (P. E. Goddard, *The Present Condition of our Knowledge of North American Languages*. *Am. Anthr.*, n.s., 16: 561, 565, 1914.)

⁹ While the aboriginal population of Canada and Alaska decreased 55 and 61 percent respectively, there has been no such wholesale extinction of entire tribes in these countries as occurred in the United States. In fact, according to Mooney's figures, in all Canada only 5 of 67 tribal groups were wiped out; and in Alaska only 2 of 51.

Not all the tribes, however, melted away at the advance of the white man and his civilization.¹⁰ And yet Mr. Mooney's figures show only 15 groups which have either held their own or have increased in numbers during the historic period—one in the North Atlantic, two in the Gulf, one in the Central, three in the Plains, one in the Columbia, one in the Central Mountain, and six in the New Mexico and Arizona region.

TABLE 4

Population, beginning historic period *Population, 1907*

Iroquois confederacy, without the Tuscarora	5,500	17,630
Cherokee	22,000	25,000
Choctaw	15,000(?)*	18,000
Ojibwa (U. S. and Canada)	35,000	36,000(?)*
Cheyenne	3,500	3,351
Ponca	800	845
Sioux	25,000	28,000
Salish	600	623
Jicarilla	800	776
Mohave Apache	600	655
Pima	4,000	4,037
Papago	6,000	5,800
Apache	5,000	4,500
Navaho	8,000	25,000(?)
Acoma "province" Pueblos	1,500	2,190

* Question marks after figures are Mr. Mooney's

The principal causes for this persistency of some groups were, according to Mooney, mixture with the whites and the incorporation of other Indians into the tribe. This was the case especially, he thought, with the Iroquois, the Cherokee, the Choctaw, the Sioux, the Navaho, and the Apache. Great resisting power and successful warfare also helped the Iroquois and the Sioux.

THE UNIVERSITY OF COLORADO,
BOULDER, COLORADO

¹⁰ In California, however, there is not a single tribe that did not suffer great losses.

NOTES ON CENTRAL POMO AND NORTHERN YANA SOCIETY

By E. W. GIFFORD

THE CALIFORNIAN tribes examined to date, as to land ownership, chieftainship, and organization of society in general, reveal considerable variety in the first item, and an underlying uniformity cloaked with superficial, or superimposed, differences in the second and third items.

Land ownership varies inexplicably. Some groups in juxtaposition have radically different tenure. There is the internationally owned land of the Central Miwok, the communally owned land of the Eastern Pomo of Cigom village, the lineage-owned land of the Cupeño, and the privately owned land of the Southeastern Pomo.

Chieftainship wherever present proves to be a civil and ceremonial office, and in that sense is uniform in California. Variety, however, appears in matters of inheritance, title, relations to constituents and to other chiefs, manner of selecting successors, and in other minor points.

The lineage or unilateral joint family seems to be emerging more and more as the fundamental unit upon which is built the village community by the uniting of two or more lineages. It is becoming increasingly apparent that chieftainship and the lineage are genetically connected, and that chieftainship is primarily an office in which the chief's constituents are his kinsmen. By the uniting of such lineages in a single community village life begins. Both the Central Pomo and Northern Yana had achieved this.

CENTRAL POMO¹

A paper² recently published by Dr. Edwin M. Loeb deals in part with the Central Pomo of the coast of Mendocino county.

¹ The data presented below were obtained in 1917 in the course of field work for the University of California. They concern the Central Pomo of Yokaia village, near Ukiah, Mendocino county, and of the so-called Hopland rancheria, near Hopland, Mendocino county. The data are derived from four informants: Stephen Knight of

The Central Pomo of the Russian River valley dealt with in this paper seem similar to the coast people, so far as Loeb's material and mine cover the same ground.

Chieftainship.—Chiefs acquire office by inheritance through either the mother or the father. A chief's sister or daughter may be a chieftainess ("queen" as the informant expressed it), but the husband of a chieftainess and the wife of a chief acquire no rank or title by marriage. At the time of my visit an elderly woman named Kate Beatty was chieftainess at Yokaia, her brother having been chief before white people came.

A woman chief may be appointed sometimes to succeed a woman chief. Apparently less is expected of a chieftainess than of a chief, for it was said that the former did not address the people in person, but conveyed her messages through a male chief, who did the talking to the people. A chieftainess could take the initiative in planning a fiesta, but enlisted the aid of colleagues. Captain Jack of Hopland rancharia had three daughters in 1917, the eldest of whom may become chieftainess.

Transmission of office from a chief to his brother, his sister's son, or his brother's son, takes place only when he lacks direct heirs. Informants emphasized that chieftainship is only through blood, never through marriage.

The title of the chief is *djayadul*, of the chieftainess *matakaletc*. An aged incumbent usually names his successor, male heirs being preferred to female. Even when the office is held by a woman she usually selects a son rather than a daughter to succeed her. When selecting a successor the aged incumbent assembles his people, who bring beads to him. The successor is designated by the old chief presenting the beads to him, thus publicly indicating his choice.³ The old chief led the heir-apparent four times around the ceremonial house, either indoors or outdoors.

Yokaia village; Charles Ramon, David Thompson, and Captain Jack of Hopland rancharia. The last-named was a chief and was born at Hopland. Ramon was born at Cloverdale in Southern Pomo territory, and Thompson at Upper Lake in Eastern Pomo territory. Thompson was born in 1851.

² Pomo Folkways. Univ. Calif. Publ. Am. Arch. Ethn., 19: 149-405, 1926.

³ According to Charles Ramon, chieftainship among the Southern Pomo was matrilineal and passed to the chief's sister's son, unless for some reason the chief's

If the village were one in which there was more than one chief, the surviving chiefs inducted their dead colleague's successor into office. Thompson listed successors in order of preference as son, brother, nephew, or other male relative. In selecting his successor from among several sons, the old chief, or, if after his death, his colleagues, selected the "best-hearted" man. If he were named before his father's death, then the choice was ratified by the other chiefs of the village inducting him into office after his father's death. As to the ceremony of appointment I have no data.

One of the three or four chiefs of a village was the head chief, who bore no special title, however. He was said not to have been appointed by his colleagues or the people, but simply to have inherited his position from his ancestors.⁴ As a single family (or better lineage) from time immemorial was always under a single line of chiefs among the Central Pomo, I would venture the suggestion that the head chief may represent the original lineage which occupied the spot, while the other chiefs may represent later lineages that united with the original lineage to form the village.

In the case of the Central Pomo the composition of the village community emerges more clearly than among the Eastern Pomo. Obviously, it is along the line of lineages, each headed by a chief who derives his office from his ancestors. He is one of the lineage, the ranking individual of a group of kinsmen. This falls in line with the ideas set forth in an earlier paper as to the development of the village community by the uniting of politically independent lineages.⁵

In warfare each chief appealed to friendly chiefs in neighboring villages for men to aid. The largest political unit of the Central Pomo was a village community. A confederation of villages under

own son was preferred. There were no chieftainesses among the Southern Pomo, according to Ramon.

⁴ This disagrees with Dr. Barrett's information which makes the head chiefship "entirely electoral." See S. A. Barrett, *The Ethno-geography of the Pomo and Neighboring Indians*. Univ. Calif. Publ. Am. Arch. Ethn., 6: 15, 1908.

⁵ *Miwok Lineages and the Political Unit in Aboriginal California*. Amer. Anthr., n.s., 28: 389-401, 1926.

a single chief seems as foreign to them as to the Eastern Pomo.⁶

An old man called Captain Jack was chief at Hopland rancheria in 1917. The preceding chief Chasco, who was his father's older brother,⁷ had named Jack as his successor. Captain Jack said that had he had no chiefly relatives on his father's side, he would have become a chief nevertheless, for his mother's brother (named Augustine, Charlie, and Lepo) was a chief. Although I did not inquire, I assume that the lineage he became a chief of through his father was naturally different from the one he would have become chief of through his mother.

There were said to have been three contemporaneous chiefs in Hopland rancheria in early days. This no doubt means that there were three lineages comprising the village community. In the Eastern Pomo village of Cigom it has been found by genealogical investigation that the three contemporaneous chiefs there headed three lineages or bodies of kinsmen, related to the chief's, principally in the female line.⁸

Land ownership.—Captain Jack's accuracy as to the population of a village formerly near the site of Hopland is to be wholly discounted when he states that there were eight hundred houses in the village. When he states, however, that the village was divided into four quarters, according to the cardinal directions, he is no doubt to be believed. Presumably these four "wards" were under separate chiefs, though I failed to ascertain this. Each ward had its hunting and acorn-gathering lands lying in the same quarter in which it was situated. To the east the land of the eastern ward extended to the crest of the mountains, beyond which was Eastern Pomo territory.

There were said to be only communal lands and no private hunting, fishing, or acorn-gathering places at Hopland, nor were there private or personally owned fish weirs.⁹ The old chief

⁶ Clear Lake Pomo Society. Univ. Calif. Publ. Am. Arch. Ethn., 18: 289-191 1926.

⁷ Jack had had seven paternal uncles, but knew only four of them, as three died before his time.

⁸ Clear Lake Pomo Society, 343-346.

⁹ Similarly, for the Southern Pomo Charles Ramon stated that each village had its own hunting and acorn-gathering grounds with fixed boundaries. The land was

Chasco, apparently acting for his constituents, would put in the Russian river at Scar rocks¹⁰ a large willow fish trap. Some days he removed, morning and evening, as many as three hundred fish. These he gave away. He did not sell them. Whether he operated the trap as chief of his lineage or village, or simply as an expert fisherman, is not clear; but at any rate his lineage, and perhaps other inhabitants of the village, received the catch.

In the case of Yokaia village, though not at Hopland, certain fishing places were regarded as the property of certain families, in whom they remained vested generation after generation. The same was true of oak trees which yielded especially fine acorns. They, too, were vested in certain families, generation after generation. A daughter who married and moved away lost her right of access to such family-owned trees, but presumably acquired similar privileges, if such existed, in her husband's community. There were no family hunting preserves.

The Central Pomo of Yokaia approach the Southeastern Pomo of the southern shores of Clear lake in their acknowledgment of private interests, whereas the Central Pomo of Hopland resemble the Eastern Pomo of Cigom village in their non-recognition of private ownership.¹¹ As Loeb states,¹² the customs concerning land tenure among the Pomo varied locally.

Houses.—The Central Pomo of the Russian river dwelt in joint or communal houses. Captain Jack explained their use as due to the desire of certain families to keep together. A stranger coming to such a communal house was given bed and food.

The several families in a joint house were always under one chief. A chief's constituents might occupy two or three such houses. Unfortunately there are no genealogical data extant to show how a chief's constituents were related to him. To assume that the connections were principally matrilineal, as with the Eastern

held communally and was not the property of families or individuals. Fish weirs, too, were communal property.

¹⁰ The Pomo name of the fishing place is Kabeyo.

¹¹ Cf. Pomo Lands on Clear Lake. Univ. Calif. Publ. Am. Arch. Ethn., 20: 75-92, 1923.

¹² Pomo Folkways, 197.

Pomo,¹³ would be gratuitous, though Stephen Knight asserted that maternal ties were stronger than paternal.

Marriage.—At a marriage, gifts were exchanged by the two families. Also the bride and bridegroom make exchanges, the woman giving baskets, the man giving blankets and beads. Usually the woman divided what she received among her immediate relatives.

Residence after marriage.—A man might take a bride to the home of his parents or to her parents' home, just as he liked. Frequently a newly married couple moved about. There was no fixed custom in this, though perhaps the more usual thing was for a newly married couple to live for a year with the girl's parents, then with the man's parents, where they settled down ultimately to more or less permanent residence in a joint house.

A widower and his children live with his parents or relatives, while a widow and her children live with her parents or relatives. No one is especially deputed to care for the widow.¹⁴

Death.—The corpse was cremated, the various relatives exercising no special funerary functions. The personal property of the deceased was destroyed, so that there was nothing for the children to inherit.

Transmission.—Grandparents of either side instructed children in mythology, as among the Eastern Pomo.¹⁵ The shaman's art, both benevolent and malevolent, passed from father to son, usually the elder. The impersonation of the god Guksu in the sacred ceremonies was also a privilege transmitted from father to son.

Personal names.—Children were named by either parents or grandparents. Namesakes were dead or living relatives, of either the father's or the mother's.

Calendar.—Captain Jack gave the following names for the twelve moons of the Pomo year, but did not indicate when the

¹³ Clear Lake Pomo Society, Univ. Calif. Publ. Am. Arch. Ethn., 18: 344, 1926.

¹⁴ Among the Southern Pomo, according to Charles Ramon, a man cares for his deceased sibling's children. He cited the case of himself caring for Louis Arnold, his sister's son.

¹⁵ Clear Lake Pomo Society, 290.

year began. The calendar is of the descriptive type. No data as to intercalations were obtained. Below I list the months in order and give their characteristics. How faithfully the month names mirror the characteristics I do not know, as I have attempted no analysis of the names.

Stalpikeida. Leaves turning yellow and dropping. At the time of my visit (November 15, 1917), Captain Jack said that *Stalpikeida* would end in eight to twelve days and that a high wind would strip the deciduous trees of the last of their leaves.

Satecauda. Cold winds; sometimes snow.

Bacelamatauka. Buckeye nuts getting ripe enough to eat. These were prepared by mashing in cold water, leaching with hot water, and mixing with seed.

Kadamtidoda. Roots and flowers commence growing. Slightly warmer than mid-winter.

Tcidodapuk. Flowers blooming.

Umtateiteda. Seeds and other plant foods ripening.

Putiteda. Edible bulbs ("wild potatoes") ripening.

Bakaititeda. Manzanita berries ripening.

Lutiteda. Acorns appearing on the oaks.

Satchuyiauda. Seaproot dug for fish poisoning.

Kalemkaityoi. Building fire at foot of big tree to fell it and obtain wood.

Kasida. Beginning of cold weather.

NORTHERN YANA¹

The Northern Yana of Shasta county, California, are of especial interest in the matter of chieftainship, because they reveal a feature hitherto undescribed for California. This feature is the employment of a separate title for each line of chiefs. In other words, they have in addition to the word for chief (*mudjaupai*), a title comparable in a way to the Polynesian titles and to the titles of the rulers of the Chibcha in ancient Colombia; as, for example, the Zipa of Bogota and the Zaque of Tunja, or again the Scyri of Quito in Ecuador and the Sapa Inca of Cuzco in Peru.

Attention, too, should be called to the resemblance in certain respects to the titles of the North Pacific Coast tribes. There but one person at a time holds the title and personates the ancestor, while with the Northern Yana all of the chief's sons bear his name or title. To what extent a Northern Yana chief person-

¹ Data recorded for University of California in 1922. Informant, Grapevine Ferry, about sixty years of age.

ates the ancestor I do not know. It is not impossible that between the Northern Yana and the Kwakiutl there may be a series of tribes with similarly titled chiefs. Northern Yana and North Pacific Coast resemblances may spring from a common source, but it hardly seems reasonable to suppose that Northern Yana and Chibcha resemblances do.

The Northern Yana hereditary chiefs suggest that the Northern Yana, too, were organized on the basis of lineages. The superiority of one chief over the others in the village of Istalmato, discussed below, may merely mean that that chief headed the lineage which originally held the spot and that the inferior chiefs represent lineages which came later to dwell at Istalmato. Istalmato was the name of a spring from which the nearby village derived its name. It was on the east side of Round mountain (Djigalmatu datwili), Shasta county.¹⁷

The principal chief of Istalmato was Tcidutcaina. The Tcidutcaina (2) who bore the English appellation of Round Mountain Jack and whose portrait has been published¹⁸ was the first Tcidutcaina chief whom the informant saw. The preceding Tcidutcaina chief (1) died before the informant's time.

The Northern Yana chieftainship was transmitted from the incumbent to his eldest son. This son, however, already bore his father's name, as did, in fact, all of the chief's sons. Only the eldest succeeded to his father's office. This scheme, of all of the sons of a chief bearing his title or name, suggests the Western Mono scheme of calling "chief" all of a chief's descendants through males, and the Central Miwok scheme of calling "chief" all of the sons of a chief. In the Mono and Miwok cases only the honorific epithet "chief" is used, whereas in the Northern Yana case the father's distinctive title, apart from the word chief, is used. It should be noted also that these schemes suggest the Peruvian use of Inca for relatives of the Sapa Inca.

The subjoined fragments of genealogies show the three lines

¹⁷ For detailed map, see A. L. Kroeber, *Handbook of Indians of California*. B. A. E., Bull. 78: 338, fig. 30.

¹⁸ Franz Boas, *Anthropometry of Central California*. Am. Mus. Nat. Hist., Bull. 17, pl. 58.

of chiefs (*mudjaupa*) of Istalmato. All of the people mentioned in the genealogies were natives of Istalmato. The informant does not appear in the genealogies. He was related, however, to the chief Dontcukila (11), who was his father's cousin, the relationship being through the informant's father's mother. Moreover, the two wives (12 and 13) of this chief were the informant's mother's cousins (*ilauyana*).

In the genealogies the chiefs are indicated by capitals, women by italics.

1. TCIDUTCAINA—	[2. TCIDUTCAINA (Round Mountain Jack) =3. 4. TCIDUTCAINA 5. <i>Solotci</i> =6. Sibomia———[7. ♂ died as infant
8. TINENUMA——	[9. TINENUMA
10. DONTCUKILA—	[11. DONTCUKILA (BILLY) =12. <i>Tcimomia</i> (Kate) =13. <i>Tcilodia</i> 14. <i>Potogia</i> =15. Pomi———[18. Wacitcaina 19. <i>Kiacpoli</i>
16. <i>Tohaumia</i> =15. Pomi——	[13. <i>Tcilodia</i> =11. DONTCUKILA (BILLY)
17. <i>Tcipomatiga</i> =15. Pomi——	[12. <i>Tcimomia</i> (Kate) =11. DONTCUKILA (BILLY)

All of the individuals in the above genealogies were said to be natives of Istalmato. If such is truly the case, village endogamy may have been the rule and more than one lineage lived in Istalmato.

The three contemporaneous chiefs of Istalmato were said to be distant relatives. Tinenuma was a cousin (*ilauyana*)¹⁹ to Tcidutcaina, the principal chief, being related to him through his father. The fathers of these two chiefs were "cousins" according to the informant.

¹⁹ Edward Sapir, *Yana Terms of Relationship*. Univ. Calif. Publ. Am. Arch. Ethn., 13: 158, 1918.

The informant's following statements throw some light on the relationships of the three contemporaneous chiefs.

Tcidutcaina was the most important chief and dwelt in the middle of the village of Istalmato. Dontcukila, a lesser chief, dwelt on the east side of the village. Tinenuma was a petty chief (kinikumaupa) and he dwelt on the north side of the village. The elder Dontcukila (10) told his son Dontcukila (11) to assist Tcidutcaina. The son assented, saying: "All right. I will help him." In the same way the elder Tinenuma (8) directed his heir (9) to help Tcidutcaina, the head chief.

Tcidutcaina was supreme in Istalmato. He "looked after everybody" and stopped any fights that might start. The inferior chiefs did not amount to much. "They bossed a little, but not much." The people obeyed the principal chief. The two inferior chiefs were quasi-hereditary lieutenants who were appointed by the Tcidutcaina chief. When Tcidutcaina addressed the people they stood behind him. If anyone jostled Tcidutcaina they shoved that person away.

When the whites first came to Istalmato the elder Tcidutcaina (1) was old and dying. He was succeeded by his eldest son (2). Sometime after the elder Tcidutcaina's death the people assembled to meet the new chief. The third Tcidutcaina (4) shown in the genealogy was murdered as a boy by a white man called Dutchman.

Money, baskets, and other property are burned at a chief's funeral. Every "week" for a month people assembled at the call of the new chief to burn property for the decedent.

According to the informant, a chief always had two wives. The wives as well as the chief's daughters were called chiefesses (mudjaupana). It should be noted that the word for chiefess embodies the stem for chief. This differs from the scheme of some groups, such as the Central Pomo, Miwok, and Costanoan who employ separate stems for chief and chiefess. It is similar to Western Mono and Yokuts, however, which likewise use only a single stem for male and female chiefs.

BOOK REVIEWS

METHODS AND PRINCIPLES

Environment and Race. A Study of the Evolution, Migration, Settlement and Status of the Races of Man. GRIFFITH TAYLOR. (New York: Oxford University Press, American Branch, 1927. 345 pp., 93 figs., 6 plates. Price \$6.50.)

The title of this book properly applies only to its parts 1 and 2, which consist of an elaboration of two long articles by the author, published in the *Geographical Review* in 1919 and 1921. The thesis there presented was incorporated by E. Huntington in his *Character of Races*, with a gesture of gratification that it had been arrived at by a "geographer" rather than by an ethnologist. The remainder of the volume has nothing to do with race, save in the most naïve and journalistic sense of the word: it deals, in short, first, with the present economic status of the white inhabitants of Australia, together with a program for the future; and second, with the possible future settlement of the world by Europeans living by their industrial culture. Neither are these parts new: the author has presented his Australian program repeatedly, and the last section is a slight reworking of another article published in the *Geographical Review* in 1922. The book is copiously illustrated with diagrams and maps drawn by the author, who possesses a marked talent for graphic generalization.

In the introductory part "ethnologic principles and criteria" are examined, cephalic index being chosen as "the best single test of race." Other criteria are correlated with this, however, and the suggestion made that one has been neglected: the nature of the "environment" in which a people lives. Thus in a preliminary correlation the following definition of one racial group is proposed:

Very long-headed folk, broad-nosed, nearly all have dark skins, and live in the tropics.

As a means of summarizing racial characteristics, the author presents one of his never-failing graphs: the "ethnograph." The vocabulary of ethnology is enriched further with two words: "dokeph" and "brakeph" (presumably adjectives), suggested as substitutes for the "ponderous terms" commonly used to designate the possession of long and broad heads, respectively.

In the series of chapters devoted to "the changing environment and racial evolution" in the various continents, complexity of race and culture is reduced to a relative simplicity. In every part of the world the author sees the evidence of the successive dispersal of peoples from the unique center of evolution in Asia. Evolution was constantly toward increasing brachycephaly, except for the brachycephalic Negrito, who is assumed to be descended from a pithecoïd stock distinct from the ancestors of the remainder of mankind. The "stimulus" of climatic change is taken as the chief instrument of evolution, and the Alpine glacial chronology of Penck and Brückner used for all parts of the earth without question of its general validity. The following summary quotation indicates both the racial distinctions recognized by the author and his conception of the process of evolution and dispersal:

It seems possible that both the Negritoës and Neanderthal man occupied Asia during the First Ice Age. Perhaps the Negritoës migrated as the result of this climatic thrust, and never returned to the "Region of Maximum Evolution."

Neanderthal (Mousterian) man may have moved out after the Second Ice Age and reached Europe about the time of the Third Ice Age. He was the chief inhabitant of Europe during the Riss-Wurm [*sic*] (or Third) Interglacial. But during this time one may postulate that the allied Negroid folk in Asia were evolving into the Iberian peoples.

The Third Ice Age drove many of the earliest Iberian peoples out of Asia and they appear in Europe, as the Cro-Magnon and their allies, just before the last Ice Age. The fourth climatic thrust is perhaps responsible for the migrations of many later Iberians and of the early Alpine-Mongolians who appear in Europe (in Ofnet and elsewhere) in Azilian times after the last Ice Age had passed away. The result of these alternating periods of evolution and migration is that the races of man have become arranged in a series of somewhat complicated zones about Central Asia. (Pp. 228-230.)

The "theory" is, of course, an elaboration of the sketch of migration from Asia presented by W. D. Matthew in his *Climate and Evolution*, 1915. A set of photographs is reproduced, exhibiting racial types approximately in "order of evolution." These grade from the latest and "highest" product, a "Tatar from western Asia" (cephalic index 85) down to the earliest, a Bushman (cephalic index 73), and a lowly African Negrito.

Evolution is seen in every phenomenon, including language, and ever with a rectilinear trend toward the "higher." The author soberly puzzles over whether the Papuan is "higher in the scale than the Australian" (p. 80). The rise of Japan in the latter part of the

nineteenth century is acclaimed as "one of the most remarkable chapters in the history of Race Evolution" (p. 187). The Nordic myth is appropriately rejected: the Alpine may be equipped with somewhat higher racial attributes (as some ethnologists are inclined to believe). (P. 195.)

The effect of "environment" is apparently somewhat complicated.

The hot environment no doubt tended to prevent the Negro from evolving into something higher.

Presumably in more felicitous latitudes evolution may continue. Thus concerning the American aborigines:

All these have been subjected to the American environment for thousands of years, so that a common "facies" tends to unite essentially distinct peoples.

Yet the dark color of the Tasmanian remains a problem:

if the Tasmanians have been in these latitudes for many thousands of years, it is difficult to understand why they have not become somewhat bleached from their very dark, almost black, colour. (p. 79.)

Citations are few and not always reassuring. Thus the reader is referred to the well-known *Outline of History* for "an excellent summary of the history of primitive man." Leaving aside the anthropologic material, which the reviewer will not presume to carp at, it seems incredible that a man of the author's interests should refer to the Nestor of modern climatology as "the eminent geographer and botanist Koeppen," or to a rather undistinguished astronomer as "Milham, the distinguished American meteorologist." The cavalier disposal of A. Wegener's theory of continental drift on the basis of the distribution of coal deposits ignores the fact that this same distribution is an important link in the Wegenerian chain of evidence (p. 312, footnote).

The later chapters of the book, which contain much sound material, suffer in effectiveness from an unnecessary sophistication. The regions of the earth are attenuated to half-immaterial "environments," composed of "controls," such as temperature, rainfall, and coal supply. The account of the exploratory pioneering of Australia is headed "The attack on the Australian environment." The settlement of that continent is discussed in terms of "the white race in an arid environment." We are told that

few chapters in the history of civilization show so clearly the effect of environ-

ment on the white race as does that dealing with the three hundred years of Australian history.

Then in a footnote:

The effect so far is mainly economic, the racial change being barely perceptible.

No evidence of "racial change" is adduced. Can it be that the author considers wheat-growing and sheep-herding part of the Australian's racial character?

In closing, the author dedicates the book to the overcoming of "*race prejudice and national jealousy*" (author's italics), which are to be combated by increased knowledge on the part of each people of the place in the world's "order of precedence" for which its racial, moral, and economic status equips it.

There is no indication that this was written in jest.

JOHN B. LEIGHLY

This book by the head of the Department of Geography in the University of Sydney is one that is easy to criticize, but by no means so easy to appraise without writing a volume as large as that under review.

Although the major motif,

that it is the *variation in the environment* [the italics are the author's] which is the most potent of all in influencing human evolution, whether biological or social (p. 4),

dominates the book from cover to cover, giving it a certain unity, the book as a whole is not a coordinate work; it is not so much "A Study of the Evolution, Migration, Settlement and Status of the Races of Man," as stated in the subtitle, as a series of essays, or an assembly of lectures and articles, on topography and climate, racial types and their distribution, and problems of race and population of the present and future. While the author's attitude and method are scientific, and his thinking clear and logical, the book is sketchy, a sort of rapid sight-seeing tour of our globe in the course of which the reader becomes fascinated with the manner in which data support hypothesis, and yet has a sneaking feeling all the while that uncongenial facts have been, not intentionally, but inadvertently, overlooked or neglected. American anthropologists especially will feel dissatisfaction with certain features of the book as a scientific work:

lack of thoroughness, casual references, careless documentation and omission of bibliography, miniature plates purporting to illustrate racial types, and a few other defects of form.

The painstaking students of the American school will probably derive little satisfaction from chapter 19 on "The Races of America." The application of Taylor's "Zone Theory" to the Americas was made first in 1919, and has doubtless been criticized by students better equipped to consider it than the present reviewer. Taylor's general conclusion is that the dolichocephalic American aborigines who followed earlier Australoid (Botocudo) and Cro-Magnon (Eskimo) settlers, and preceded later migrations of brachycephalic Mongol-Alpines,

are for the most part more closely allied to the West Europeans than to the typical "Mongolians" of Asia. In fact they represent the relics of a zone of peoples who once occupied the eastern coastlands of Eur-Asia just as their congeners still occupy the western coastlands of the same land mass (pp. 9, 216)

As an outsider I infer that the chapter dealing with America is probably worthy of some consideration in the light of the "Zone Theory" as a whole, unless it differs from that on Australasia. This section is replete with errors in detail. For example in the table of "Stone Monuments in the Pacific," "pyramids" are broadcasted in the Polynesian islands, "dolmens" attributed to Tahiti, "circles" to Tonga, and "trilithons" to the Marquesas (p. 87). (Here the author would have done well to give specific references, for his own protection.) On the whole it is unfortunate that Taylor did not resist the temptation to introduce cultural evidence apparently congenial to his hypothesis. Taken in the large, however, the conclusions regarding racial distribution in Oceania and the factors that led to it are probably sound. Furthermore, the reviewer is willing to go on record as to the value to him in his own field of new perspectives opened up by Taylor's discussion.

Taken as a whole, and despite its serious discrepancies, *Environment and Race* is a very significant contribution to the study of race, its value being due mainly to two factors: the author's originality and vigor of thought, and his freedom from the traditional points of view that make it difficult for the schooled anthropologist to approach the problem of race with the freshness of vision that Taylor, as primarily a geographer and geologist, brings to it. Some of the outstanding good points of the book must, therefore, be emphasized.

The use of the polar projection of the map of the world (previously employed by W. M. Matthew in connection with mammalian distribution) is original with Taylor, I believe, so far as consideration of human distribution goes. It gives a simplified perspective on the continents and their races, and immediately unifies and clarifies the problem for the mind. It has this defect, however, that while it makes obvious the main routes of terrestrial migration, it exaggerates the separation of continents by the oceans, and thus gives a false impression of the possibilities of maritime migration, which have very generally been underestimated, particularly in the Pacific.

Taylor's discussion of the geologic background, topographic conformations in various epochs, earth movements that have affected migration such as the raising of the Alps and Himalayas and the drowning of Malaysia, and his handling of climatic factors, are masterly, though perhaps there is a little too much geology for a book on race. Especially illuminating, and capable of further development, is the discussion of climatic and botanical zones and their correlation with the zones of human habitation in the continental peninsulas. His tables correlating head form and pigmentation with temperature give food for thought.

The author believes that "the living races are descended from two stocks. . . . These are: A. The forerunners of the brachycephalic Negrito (Aetas, etc.); and B. The forerunner of the Negro, etc." (Pp. 45-46.) To climatic changes during the glacial advances are attributed variation and the main waves of human dispersion out of central Asia, which Taylor regards as the cradle of the human race. The fact that the Mongoloid races are found centering about the now desiccated Asiatic cradle, and have during historic times been gradually pushing their way outward in every direction at the expense of long-headed peoples, leads to the conclusion that the

so-called "yellow" or Mongolian type of man is a later product of human evolution than many western members of the so-called "white" or European type. In other words, the eastern Asiatic is farther from the primitive anthropoid stock, while the Negroid and West-European peoples are earlier, lower offshoots from the line of human evolution. (P. 7.)

Chapter 20 is a restatement of the author's "Migration-Zone Theory," according to which each of the continental peninsulas (Eur-Africa, Australasia, the Americas) radiating from the Asiatic center "contains zones of peoples, which are more and more primitive

as we move away from Asia," the most primitive being found pushed to the periphery, and the "last evolved" in the center.

Where the racial evolution has progressed farthest the "buried strata" of more primitive tribes will be most numerous;

and the

order of evolution is the same, whether we move outwards from the centre, or downwards through the "strata." (PP. 220-1.)

The application of these principles, which are now pretty generally accepted by students of biological and cultural distribution, to the consideration of racial distribution throughout the world is Taylor's unique contribution.

The last part of the book deals with the present and the future. The subject of "White Australia" alone is dealt with in the section on "The Present." How delightful it must be to live in the Antipodes and have only one problem in the present to worry about! There are conclusions and statements of general significance, however. Those who visualize the world of the near future as one from which all dark-skinned races shall have vanished will do well to consider carefully Taylor's discussion in this and the section that follows. He has shown that

no arid or tropical regions resembling our empty spaces (in Australia) have been settled by any noteworthy white population (p. 293).

The final section deals with "The Control of the Potential White Settlement of the World by Environment." East's conclusion that the food problem of the world will be very difficult in the near future is approved. Having recently personally observed and discussed with scientists the vast areas of good land practically undeveloped in the three regions of the world supposed to be most overpopulated, namely Japan, China, and India, the reviewer finds it hard to take very seriously the fuss being raised over the impending overpopulation of our globe. This section as a whole is, however, a valuable discussion of the future, but one of greater interest to economists and publicists than to anthropologists.

Several original features of the book deserve mention. The use of "block diagrams" (similar to those employed by geologists), to picture racial and cultural stratification and zoning is happy; and some geological terms that are introduced, such as "shatter belt," "inlier," "outlier," etc., are good as suggestive similes, though it

seems unnecessary to incorporate them in our terminology. An excellent invention is the "Ethnograph," a six-sided figure whose form varies according to the extension of its several axes which are made to correspond to cephalic index, hair type, stature, nasal index, and face breadth.

The numerous maps, charts, and tabular summaries, the thorough discussion of the geological, geographical, and climatic background, and the original treatment of the subject in general, should make the book valuable for teachers of geography and human history, as well as students of race; but the text should be made use of for its suggestive value, rather than quoted as authoritative.

E. S. CRAIGHILL HANDY

Prehistory Chart. Types of Men and Cultures in the Glacial Age.

A. E. JENKS. (Chicago: A. J. Nystrom and Company.)

During the relatively short historic era, one deals with a chronology which may be called absolute. When it comes to the prehistoric era, one has to be content with approximations—with a relative chronology—as is the case when dealing with the Ice Age or with geologic time. This fact, however, does not reflect on the validity of prehistoric chronology or on its scientific value. Where we have to deal with such big units of time, a difference of opinion of even thousands of years is no very serious matter. In consulting various authorities therefore, one should not be surprised to find chronologic disparities. For example, we are told by some that the Ice Age began about a million years ago and lasted until some 20,000 years ago. Others would reduce its duration by about one-half. This reduction is generally effected by lopping off the first few hundred thousand years.

Since Penck and Bruckner's work on the Ice Age appeared in 1909 a number of authors have attempted to correlate Prehistoric and Ice Age chronology. The laudable attempt by Professor Jenks along this line is in the form of a wall chart, the lower half of which is covered by many and, on the whole, appropriate illustrations representing cultural remains of the various epochs into which the prehistoric era is divided. The upper half is reserved for the correlation of cultural and physical types with the successive epochs of the Ice Age. The conservative figure of 350,000 years is suggested as the time that has elapsed since the latter part of the Pliocene epoch. It might be well to note a slight lack of consistency in the chart as

worked out and the title, since the chart not only overlaps on the Pliocene but also includes Postglacial time.

GEORGE GRANT MACCURDY

Die Sprachfamilien und Sprachenkreise der Erde. P. W. SCHMIDT, S. V. D. (Heidelberg, 1926. 596 pp. and atlas.)

This is a monumental work such as could have been produced—especially alongside multifarious other duties—only by an extraordinary mentality and probably only by Father Schmidt. It covers all the pertinent literature bearing on the relationship of all languages, and yet is no mere compilatory digest but independently judged throughout, holding its own single-handed with the composite authorship of Meillet and Cohen's recent *Les Langues du Monde*. All this, however, is only part of Father Schmidt's volume. The second half deals with "language spheres" (*Sprachkreise*) and their relation to the *Kulturkreise*, and is wholly original.

The Ural-Altaic family is made to include Eskimo, Korean, Japanese. The following are treated under the heading "Japhetic," apparently with favorable inclination toward accepting their original unity: the ancient Anatolian languages (Lycian, etc.); Etruscan; Caucasian; Elamite, Mitanni; and perhaps Basque and Sumerian. The treatment of Africa is somewhat polemical against Meinhof, and bases largely on Drexel. The groups recognized are Hamito-Semitic; Khoïn (Hottentot-Bushman); Bantu; Bantoid (Wolof Temne, Bullom, Legba, etc.; also Pula, which is separated on the map); Wule (Nyamnyam, Fang, etc.); Ngo-Nke (Songhai, Bambara, Mandingo, Vei, Soso, etc.); Manfu (Kru, Grebo, Ashanti, Volta, Yoruba, Ibo, Adamaua); Kanuri (Teda, Kanuri, Bagrimma, Logone); Nilotic (Nuba, Shilluk, Dinka, Nuer, Bari, Masai, etc.); Haussa. In Asia Schmidt recognizes as independent: Burushaski (head of the Oxus); Yeniseian, Palaeo-Asiatic (Yukagir, Chukchi-Koryak-Kamchadal, Aino-Gilyak), Andaman; Lati (105°E, 23°N); Dravida. The Austro-Asiatic half of Austric comprises all Kolarian dialects, Khasi, Palaung, Riang, Wa, Lemet, Lawa, Mon, Khmer, Moi, Nicobar, Semang, Senoi, Bersisi, Jakun, Cham group (mixed). Anamese is Sinitic with an Austro-Asiatic element. Austronesian is Malayo-Polynesian; western New Guinea is included. Papuan languages, distinct inter se, are recognized in Halmahera, eastern New Guinea, Louisiades, New Britain, Savo, Bougainville. Australia is treated as in Schmidt's earlier work.

For North America the consolidations of Sapir, Swanton, Dixon, Kroeber, Frachtenberg, Lehmann are generally accepted. Wiyot and Yurok are classed with Algonkin. Tlingit and Haida, with Dene (though the map unites them with Tsimshian instead); Natchez and Caloosa, with Muskogi; Atacapa and Chitimacha, with Tunica; Karankawa and Tonkawa, with Coahuiltecan; Wakash and Chimakum, with Salish ("Mosan"); Lutuami and Wailatpu, with Sahaptin ("Oregonian"), Chocho, Chinantec, Mazatec, Chorotec, Mangue, with Otomi; Zoque, Huave, and the group Xinca-Lenca-Paya-Jicaque, with Mixe. However, the Xinca group is united also with Miskito-Sumo-Ulua-Matagalpa, and elsewhere with Hokan, Seri, Coahuiltecan, Tequistlatecan, Tlapanec-Subtiaba into a "Central American-Pacific" group. The map is somewhat diagrammatic, not only in the congested California-Oregon area, but in extending Shoshoneans into Saskatchewan drainage and having them separate Yuman from Apache, placing the Arapaho with the Blackfeet but the Cheyenne south of the Kiowa, part of the Sioux south of the Kansa, the Flathead west of the Chilcotin, etc.

For South America, Rivet and his collaborators are often followed, as in affiliating Uru and Puquina with Arawak. Chibcha however is carried south to include Yunca, and, to the north, the Miskito and Xinca groups. As these are also connected with Hokan, 'languages going back to a single source would be distributed along the Pacific coast nearly from Lima to Oregon.

There is no attempt to present data on any language, but there is in each case exhaustive mention of the principal works dealing with the internal classification and possible outward relations of each stock.

The second half of the book examines the distribution throughout the world of certain features: the impure vowels *ó* and *u*, differentiation of surd and sonant stops and of fricatives from stops, consonant combinations at the beginning and end of words, number, inclusive-exclusive distinction, presence and kinds of gender, numeral systems, position of the genitive noun and possessive pronoun, and, in relation to this, of the accusative and adjective. Six of the fourteen maps in the atlas picture the distribution of these traits. Such a mass of newly systematized data ought to lend themselves to the illumination of problems of fundamental importance: for instance, whether structural speech traits can spread by "infection" or "diffusion" to unrelated languages, if so, what determines the spread; and so on.

The theoretical problems considered by Schmidt are two. First, can the position of the genitive change as a result of inward factors of development? To this the answer is no, and actual change is explained as due to alien admixture. Second, are the positions of genitive, accusative, and adjective interrelated? The answer is yes, especially for the accusative, on the basis of statistical correlation. The reviewer sees considerable validity in this approach, and inclines to agree with the author as to the generic importance of genitive position, though he would construe this etymologically rather than syntactically.

Next, three "Ursprachenkreise" are determined, and three "Primärsprachenkreise," from which follow mixtures and secondary and tertiary "language spheres." In this way all the languages of mankind are accounted for developmentally. The reviewer finds himself unable to obtain a clear picture of the concept of a "language sphere." The following are Schmidt's *original* or primitive ones:

1. Great Andaman, Bushman-Hottentot, Yuki, Penutian, most Hokan; also Chukchi, Koryak, Ainu.

2. Kulin, Kurnai, Narrinyeri in Australia, Baining in New Britain.

3. Older Ugro-Finnic, Kamchadal, Tshon-Ona-Alakaluf.

Transition from 1 to 2. Little Andaman, Semang, minority of Hokan, Tapuya, older Melanesian.

Transition from 1 to 3. Samoyed, Yukagir, Yahgan.

The *primary* language spheres are the Southern, Northern, and Middle. The first is represented chiefly in the southern hemisphere; the second is mainly northwest Eurasiatic; the third comprises, among other tongues, southeast Australian, most of Austronesian and Austro-Asiatic, part of Sinitic, most of Japhetic, the Kanuri and Manfu groups in Africa, in America Maya, Central American-Pacific, etc.

It is evident that these speech spheres are intended to represent some sort of historical entities, but that these are not only differently arrived at, but are entities of a different order from those with which students of language have been accustomed to deal.

However, this is plain: the speech spheres are somehow analogous to the culture spheres of which Father Schmidt has constituted himself the most active champion: and before he has gone very far, he equates them (all but the Boomerang culture, which has no speech equivalent and appears to be repudiated also as a cultural entity). The distribution of Ursprachenkreise and Urkulturenkreise coincides. The Southern primary sphere connects with the Totemic culture:

the Middle one with the Matrilineal; the Northern with the Nomadic-Pastoral. The final map shows at one and the same time the distribution of the genitive and the matrilineate.

Nothing could appear more preposterous; and yet the book is one of the most important produced in general and comparative linguistic science. Father Schmidt is an inveterate system-builder; he always proves what he sets out to prove; he delights in complications, difficulties, and objections which he invariably disposes of. But he possesses much more than the cleverness of intellectual gymnastics. He has astonishing insight, breadth as well as depth, the faculty of dealing with almost unlimited masses of data, as well as remarkable "feel" for language. Try as he does, he simply cannot ruin his very real genius, and the book will remain as one of the milestones of linguistic progress. Its thesis is almost certainly too fine-spun, intricate, and arbitrary to hope to win general acceptance. But innumerable items and ideas in the work are permanent contributions; and the author's master mind is stimulating even in its phantasies.

A. L. KROEBER

PREHISTORY

The Antiquity of Man in East Anglia. J. REID MOIR. (Cambridge University Press, 1927. xiii+172 pp., 25 pls., 74 text figs.)

"The Antiquities of Man"—barring the tautology—would be a more suitable title for this book, because the author is not primarily concerned with questions of time, and he not only furnishes detailed descriptions of the successive prehistoric cultures of East Anglia but makes excursions to other parts of England, continental Europe, and even far away Java. For the home field, however, we have an admirable account, largely of his own newly discovered relics, ranging in age—so it is believed—from Late Pliocene up to Early Saxon times. As such the book brings together for us several essentially new chapters on prehistory, for while Eoliths of Oligocene, Miocene, and later dates already have been much described and discussed, Mr. Moir alone attempts to show (p. 20) the genetic relationship of these half nature-made implements and the obviously man-made Paleoliths of later Pleistocene times.

Our volume opens with a brief ingratiating chapter on "The Pleasures of Flint Hunting," well calculated to stimulate the lay-

man's interest. The second chapter considers the criteria for distinguishing nature-made and man-made flints. Here and elsewhere the student will find a good deal of original observation as well as clever experimentation—enough at any rate to redeem whatever of rashness and mild dogmatism may be charged to the treatise as a whole. In the third chapter is outlined the recent geological history of eastern and southeastern England, making clear the character, position, and age of the various marine, fluvial, and glacial deposits beneath and throughout which occur the artifacts described in the remainder of the volume. The author seems to stand alone in his interpretation of the geology, in particular the commencement of the Ice Age, and the relation of the earlier culture strata to the same; but all that is of secondary importance if only his determinations of the chipped flints as cultural remains are correct.

According to Mr. Moir, the oldest traces of man in East Anglia are found in a so-called Bone Bed, or shallow sub-Crag deposit at the base of the Pleistocene. Thus, the author describes five places in and near Ipswich alone where the occurrence of crudely chipped flints indicates that man once lived on the old Pliocene land surface. Other students, such as Osborn and Keith, would call this level Upper Pliocene, but no matter. The flints found here are of three kinds: some sharp-edged and only moderately weathered, others rolled and heavily patinated, and still others comparable to the Eoliths of the Kent Plateau. Obviously the two latter flint groups have been transported from older geological deposits, suggesting that the first toolmakers of England date back into the Pliocene, and giving us incidentally what would appear to be the first clue to the age of the Kentian Eoliths. The implement types—unspecialized hammers, scrapers, and perforators—are regarded as transitional between Eoliths and Paleoliths and the author calls the typical sub-Crag industry pre-Paleolithic.

The next geological level containing relics of man occurs higher up within the Crag formation itself. Foxhall, near Ipswich, is the chief site, and here was found a succession of habitation floors with diminutive worked flints, traces of animal bones, and probably a human lower jawbone, now unfortunately lost to science. Still higher up in the Pleistocene series, for example in the famous Cromer Forest Beds, exposed on the North Sea shore, Mr. Moir has obtained crude large-size flints which he identifies with the Chellean

or Early Paleolithic industry. From this stratum on up through the successive glacial deposits the discoveries in East Anglia conform to the findings elsewhere in western Europe. Mr. Moir's real contributions are, therefore, his discoveries beneath the Norwich and Red Crag formations, within the Red Crag itself, and within the Cromer Forest Bed series. He notices during the slow accumulation of these deposits the gradual improvement of designed flint implements, clinching their absolute and relative ages by fresh and acute observations on the varying degrees of patination. He also adds some astounding discoveries of supposedly crude bone implements and even a humanly shaped piece of wood.

The remainder of the book treats chiefly of the industries of the Paleolithic proper, which, as things go in England are well represented in East Anglia. Brief chapters are added on the Neolithic and Metal Ages, the most interesting section being that dealing with evidences of the remarkable flint-mining industry at Grime's Graves on the Suffolk-Norfolk border. The clarity of Mr. Moir's presentation is appreciably increased by a well-chosen series of illustrations, and barring some ambiguities and the lack of a map we have here a book no prehistorian can afford to ignore.

In conclusion, it seems presumptuous for an American, innocent of technical training in geology and only partially acquainted with Mr. Moir's data, to attempt a critical estimate of his labors. I think it safe to say, however, that with all due respect for the learning, experience, and acumen of our European colleagues, a disinterested comparison of their conclusions regarding this whole pre-Paleolithic problem makes it only too clear that we are in that strange realm where one man's opinion is about as good as another's and no opinion is really worth very much. The Abbé Breuil some years ago saw fit to accept the human character of Mr. Moir's sub-Crag flints. Dr. Capitan later acknowledged them, on the strength, I believe, of some published illustrations, but when afterwards I led him up to the cabinet, in the British Museum, containing Sir Ray Lankester's famous type specimen of the *rostro-carinates*, he gave it one fierce look, threw up his hands, and backed away with an explosive "*Jamais!*" The same Capitan found the Miocene flints of Puy Courty (Dept. Cantal, France) acceptable, while the Abbé Breuil did not. Reid Moir duly recognized their artificial character, but meanwhile Professor Sollas seems to waver in his opinion about them. One might go on indefinitely. I myself spent some hours

examining the Puy Courney flints, hidden away unpublished for many years in a small English village, and found them if anything more impressive than Mr. Moir's East Anglia flints of Pleistocene date. But I am by no means convinced, for while one must admit the strikingly human characteristics of the flaking and chipping exhibited by the specimens, he is at the same time obliged to wonder as to what purposes such crude and shapeless "tools" could possibly have served. Moreover, I believe with Boule that Nature does produce a great variety of flaked and chipped flint forms and that until a real Foxhall man turns up our Pliocene ancestors must, for some at least, continue a pleasing mirage.

Under such circumstances specific criticisms of Mr. Moir's researches are scarcely in order. Rather our doubts should serve to stimulate him, for I see no other way in which to solve his problem except by encouraging him to go on—unless perhaps we ourselves take a hand by commencing a serious study of our American gravel deposits to find out whether on a continent probably not inhabited by man before Early post-Glacial times we find chipped flints similar to the remarkable specimens, say, of East Anglia.

One final thought it is tempting to add about Mr. Moir himself and his compatriots. English traits, as exemplified by the seemingly contradictory elements of individualism and sportsmanship, have resulted once more in a bold amateur outdistancing the wary professionals. The volume here dealt with summarizes in forceful style, calculated to convince all but the professionals, the results of eighteen years of a business man's pursuit of a hobby—in this case the archaeology of his immediate neighborhood. The professionals may not accept all of the author's conclusions, but no one can deny either that his concentrated efforts have produced permanently valuable results or that Mr. Moir has had an enjoyable time in the bargain. Almost the outcome makes one wish for a little less of organization in American science and a little more of the proverbial English blundering.

N. C. NELSON

ASIA

Northern Mongolia. Published by the Russian Academy of Science (in Russian). (Part 1, Leningrad, 1926, pp. 1-163, plates 1-6, map. Part 2, 1927, pp. 1-88, map, and plates 1-10.)

In the summer of 1924 the well known Russian traveler, P. K. Kozlov, made some excavations of graves in northern Mongolia.

Even a superficial description of specimens obtained showed the high scientific value of the material and the urgency of further investigations. Mongolia is still a country very little studied. In accordance with the recommendation of the Russian Academy of Sciences the Soviet of the People's Commissars decided to organize an expedition for the study of the nature, history, and archaeology of Mongolia. The Mongolian republic gave its assistance to the work of the Russian scientists and its Scientific Committee granted 6,000 Chinese dollars to cover some special expenses. In exchange the Scientific Committee of Mongolia will receive for its museum duplicates of specimens obtained.

The two above mentioned publications are preliminary reports by the Russian members of the expedition. Part 1 contains reports for the year 1925 of the geological, geochemical, and soil-geographical parties of the expedition. Part 2 includes accounts for the same year of the ethnologico-linguistical and archaeological divisions.

The writer will give here a review of Part 2 only. The contents of Part 1 lie outside of the competence of the reviewer as well as outside of the interests of the *AMERICAN ANTHROPOLOGIST*.

Part 2 includes two reports:

1. B. J. Vladimirtzev. Ethnologico-linguistical investigations in Urga and in the districts of Urga and Kentei (3 illustrations).
2. G. I. Borovka. Archaeological examination of the middle course of the Tola River (12 illustrations, 1 map, and 10 tables).

Vladimirtzev, Professor of Mongolian at the University of Leningrad, is well known for his Mongoloistic studies. He had in his party one of his university students, Baldji Bambayev, himself a Mongol. The assistance of the President of the Mongolian Scientific Committee, Djemjisayed, its Scientific Secretary, C. J. Jamcharano, the lama Shagdje, and of other Mongolian scientists may be mentioned.

The aims of Vladimirtzev's expedition were: (1) Observations on the dialect of Urga, where representatives of different Mongolian tribes come together; the dialects of the region to the east of the Mongolian capital, as the least studied; collection of linguistic and folkloristic material. (2) Acquaintance with the collection of Mongolian manuscripts and books in Urga. (3) The study of remains of the "old living times." (4) The survey of alleged places where Genghis-Khan spent his early years, places connected with the rise of the Mongolian empire of the twelfth century.

What we call the Mongolian language consists really of many dialects: Khalkhas, Buryat, Oirat (or Kalmuck), South Mongolian, and others, and of the written, literary language, which greatly differs from all the spoken dialects. It may be said that the Mongols have not what we call a national language, as the literary language is used only in writing and not in conversation. However, the Khalkhas, more than any other Mongolian dialect influences the present literary language. Speeches, addresses, and other public orations are delivered in a form near the Khalkhas and thus may develop in the future a conversational language parallel to the literary language.

After dwelling on the special subject of phonetics and morphology of the Mongolian dialects Vladimirtzev gives some samples (in Mongolian and Russian translation) of the present Mongolian poetry, which were influenced by the Russian Soviets and the Mongolian revolution. For instance:

The Red Banner

We lifted the red banner,
We spread the majesty of the people;
The traitor, the rebel Naidan-Van¹
We crushed, shouting akh!

We lifted the yellow banner,²
We spread the majesty of the Buddhist faith;
We, becoming pupils-subjects of Khutuchta,
We started for the Shambala³ war.

Before the prosperous Empire
Wise officials had assembled;
At the order of the Khan-lord
We, lads, started to war.

The shamanism of the Mongol is declining under the influence of Buddhism. The lamas themselves are curing sick people and the shamans are regarded as inferior. In some cases the shamans, while performing, recite Tibetan prayers, and they regard themselves as assistants of lamas. Shamanism is more preserved in the eastern Khalkha, where the influence of the Buryat shamanism may be

¹ Naidan-Van was one of the leaders of a south-Mongolian detachment, a partisan of the white general Baron Ungern.

² That is the Buddhist banner. We see that these red Mongolians are not influenced by the Russian Soviet slogan that religion is opium for the people: they remain devoted Buddhists.

³ Shambala is a mythical Buddhist country.

detected, although the shamans themselves deny it. Shamanistic performances, spirits, and garb, as described by Vladimirtzev, have their parallel in Siberia, and I shall not enter into details.

We shall also ignore Vladimirtzev's description of different types of graves and stone figures called "kamenniya baby," i.e., stone women, of supposedly Turkic origin, because Borovka, as we shall see farther, investigated them in greater detail. The endeavor to discover the mountain Burkhan-Khaldun, the place where Genghis-Khan, according to the safest sources, was buried, proved unsuccessful.

Borovka made his excavations in the valley of Tola river, on which Ulan-Bator-Khoto (the former Urga), the capital of the Mongolian republic, is situated. This valley had seen the camp of Genghis-Khan in the time of his flourishing power. Borovka and his party took the western direction down along the course of the river, as the route to the east of Ulan-Bator-Khoto was already surveyed by the Scientific Committee of the Mongolian republic.

Borovka met four fundamental types of old burial places: (1) graves fenced in by stone slabs in a standing position; (2) mounds (or kurgans) covered with stones; (3) burials with a large central stone heap connected with separate stone heaps of smaller sizes; (4) graves of Turkic princes of the seventh-eighth centuries of our era with "stone women" (Russian *Kamenniya baby*), which became known from the Orkhon expedition of 1891.

The reviewer wishes to note here that among the so-called stone women, figures of men are also met, as shown by the representation of their private parts.

The first three types of burial places are similar insofar as they consist of stone heaps. The present Mongolic inhabitants of the country call them by a common name, Hirghis-ur (i.e., Kirghis graves), which name in the Russian literature had assumed the distorted form of "hereksur." Borovka proposes to apply the name "hereksur" only to the composite mounds no. 3, and in his further description he distinguishes three types of graves: (1) slab graves; (2) kurgans or mounds; (3) hereksurs.

Such a division of the ancient graves of Mongolia into three types, plus a fourth type of the graves of Turkic princes, may be distinguished from the characteristics given by the academician, W. W. Radloff, in his *Atlas of the Antiquities of Mongolia* and also from the

typology proposed by Grano⁴ by the fact that the kurgans are regarded by Borovka as one distinct type. Both investigators named distinguish, besides the graves of Turkic princes, only two types of ancient graves, which correspond to Borovka's slab graves and hereksurs. The first graves Radloff calls "stone graves," i.e., graves enclosed by standing stone slabs, while hereksurs he calls graves covered by split stones or cobblestones. Granö calls the first type of graves "steppe-burials" (Steppengräber) and hereksurs "burial hills" (Grabhügel).

Borovka and his party followed along the right bank of the Tola river, as he knew from his former investigations that the more populated right bank and not the road of the left bank is the one that includes a great number of ancient graves. The first part of Borovka's route coincides with the route covered by N. M. Yadrintzev, member of the Orkhon Expedition of the Imperial Russian Academy of Sciences of 1891, who made only superficial observations of this part of the route, as his chief interest was concentrated in the region of Orkhon. Thus, for instance, Yadrintzev mentions only eleven places with ancient monuments between Ulan-Bator-Khoto (Urga) and Navan-Tzarena, while Borovka registered ninety-two graves and other ancient monuments. Most of them were investigated in detail, many photographed and sketched, and some of them excavated although unfortunately without the anticipated results.

For the first time there were discovered traces of an ancient Neolithic culture. This shows the importance of further and more extensive archaeological work.

Because of the small number of laborers in the party, Borovka thoroughly excavated only four graveyards.

Borovka with the help of his Mongol guide discovered "inscriptions" of the Orkhon type on rocks which were unknown before. Along with the inscriptions there were also drawings which make it possible to refer a part of the inscriptions to the Scytho-Siberian culture.

In some of the excavated graveyards were found only small parts of human skeletons, the largest parts have been destroyed by a large species of marmot. In one grave, skeletons of two horses, killed at the burial, and a human skeleton without the skull were found.

⁴ J. G. Granö, *Über die geographische Verbreitung und die Formen der Altertümer in der Nordwestmongolei*. *Journal de la Société Finno-Ougrienne*, 28: 6 (part 2), Helsinki, 1912.

The reviewer wishes to recall here that "stone women" have been found from southeastern Russia, where they were erected by the Polovtzy, all along southern Siberia, and in Mongolia to the boundaries of China. Ancient Turkish inscriptions of the eighth century were discovered in 1889 near the Orkhon river to the south of Lake Baikal, and some later inscriptions of the same type were discovered in the upper reaches of the Yenisei river. Both inscriptions were deciphered and translated by Thomson and Radloff. Donner, who examined the origin of the alphabet, came to the conclusion that the Yenisei inscriptions are somewhat older than the Orkhon inscriptions, and that both are derived from the Aramaic alphabet.

Professor Barthold,⁵ the best Russian authority on the history of the Orient (Far and Near) says that after the discovery and deciphering of the Orkhon inscriptions we know that the statues called "stone women" were put up by Turks in memory of their deceased, serving in the beginning as representations of enemies killed by them, and later perhaps for some other reasons, as along with figures of men there are also statues of women. It is possible that in some cases they represented the deceased themselves.

We do not know so far of any non-Turkic people who erected statues of this type. According to Radloff, the burial monuments in memory of Turkic princes were erected, in order to celebrate commemorations for the dead, not on the graves themselves. The burial places of khans were called *kuruk* and regarded as tabooed. According to Vladimirtzev, *kuruk* is a Mongol word adopted by Turks and means "forbidden." Genghis Khan was buried with the usual ceremonies of Turkic princes and the location of his grave is unknown, although according to some historical sources he was buried on a high mountain called Burkhan-Khaldun, the slopes of which were long after watched by a special detachment of guards, who did not know, however, the location of the grave. At present nobody in Mongolia knows a mountain of that name.

It is worth noting that in Mongolia along with Scytho-Siberian drawings on rocks of the so-called reindeer motive were found stone monuments representing turtles, which are characteristic for Chinese sepulchral memorials. Vladimirtzev pointed out also that the bricks

⁵ V. Barthold, On the question of the Burial Customs of the Turks and Mongols. Mem. of the Oriental Division of the Russian Arch. Soc., 25: 55-76 [1917-1920], Petrograd. 1921 (in Russian).

of which some of the monuments were erected seemed to him to be of Chinese manufacture.

To return to Borovka. The following are his tentative conclusions. His expedition obtained data showing that the Turkic period in Mongolia was preceded by an extended period of a Scytho-Siberian culture. The slab graves, kurgans, inscriptions, stone figures, and "reindeer stones" prove it. Further investigation of Neolithic remains is most important for the study of the gradual development of culture in Mongolia. The Neolithic people were primeval plant-users—"Sammler"—i.e., diggers of wild roots and gatherers of plants. The oldest burial places are associated with places located not far from water, which may bear witness that their builders led a half-nomadic life. Drawings on rocks represent that people as zealous hunters of forest animals. Finally the latest graves, nearest to our times, belong to an obviously nomadic people.

After the considerations given above it is legitimate to ask, says Borovka, how far the generally accepted notion of Mongolia as the cradle of a cattle-nomadic culture conforms to the actual process of development? This question may be answered in the following way: the cattle-breeding and nomadism in Mongolia ought to be regarded not as an original stage of culture but as a result of an extended historical process and, to a certain degree, as a result of changes in the physical conditions of the country.

WALDEMAR JOCHELSON

Santal Folk Tales. Edited by P. O. Boddling. (Institutet for Sammenlignende Kulturforskning. Vol. 11. Oslo, 1927.)

The present volume of *Santal Folk Tales* gives us a welcome addition to the first volume, which I recently had the pleasure of reviewing (*AMERICAN ANTHROPOLOGIST*, n. s., 29: 709 sq., 1927).

The second volume is divided into two sections, the first being devoted to "humorous tales" and the second to stories referring to ogres. I have listed humorous tales with quotations, since the average Caucasian would not be provoked to merriment by Santal humor. In the story of the Idiotic Fatherless Boy, for example, the hero puts a noose around the neck of his mother and lets her down a well. The boy thought that he could cure his mother of a sickness in this fashion.

But when he was pulling her up, she was grinning, and he said: "Now mother has got well again and is smiling to me." But when he had pulled her out, he saw that she was dead.

Doubtless humor is a cultural trait, and as such must needs be acquired.

As in the first volume, important facts of Santal culture are dealt with in footnotes. The Santal have a well developed system of joking relationship.

Brother-in-laws and some other relatives stand to each other in what is called *landa sagai*, laughing relationship. that is to say, these relatives may jest and talk and be as free as they like; there is no formality and little restraint between them (p. 33).

Also,

The relationship between a man and his elder brother's wife is very intimate; there are few restrictions theoretically. It all depends on what the persons are (p. 10).

Finally,

Namesakes are permitted to joke with each other (p. 398).

Thus we find the custom of "joking-relationship" in areas other than North America and Melanesia.

Two ethnographic points brought out have been of especial interest to me. One is the practice of waving a chicken over a patient for the purpose of exorcism. This trait is found throughout Malaysia, and even in the Pageh islands, where I have myself seen the seer perform the rite for health-giving reasons. That the Santal have the custom, indicates a Hindu origin (p. 66).

While the Santal unquestionably have inspirational shamans, they also have a survival type of "seer."

Jan, a word borrowed from Hindi, is the Santal name for a witch-finder; they are supposed to receive revelations from supernatural beings and to be able to name the witches and also to reveal things hidden (p. 201).

The Santal keep cows, but do not care very much for the milk. The calf as a rule takes the milk of the mother (p. 89). This factor places the Santal in an intermediate position between the Orient and the Occident.

E. M. LOEB

A Study of Races in the Ancient Near East. WILLIAM H. WORRELL, Associate Professor of Semitics, University of Michigan. (New York: D. Appleton and Company, 1927.)

This book embodies a series of lectures which were delivered at various educational institutions. Originally presented in a summer session course, where shortness of time did not permit a more compre-

hensive and detailed account of the subject matter, it is to be regretted that the author has not seen fit to elaborate his short sketches at a time when the publication of these lectures was planned. The sketchiness of Worrell's work is especially keenly felt in his third chapter, which deals with the Mediterraneans, Alpines, Nordics, and Finno-Ugrarians, and which is disposed of in twelve pages. Here at least a short reference would have been in place as to the race or races inhabiting the Zagros chain prior to the coming of the Hallipi, and the position of the latter among the various racial groups. Some of the more important ethnological problems which confront the historian and student of the Ancient Near East, and which one rightly expects in a book of this nature, are not treated at all. Setting aside, however, such omissions, whatever Worrell committed himself to do is on the whole well presented and instructive. His book will serve well in an undergraduate course on the History of the Ancient Near East, where it may supplement the lecturer's introductory discourses on the races and the geography of the Near East.

I may add here a few things which have come to my notice:

- p. 26, the author still clings to the old explanation of the word "barbarian."
- p. 45, to speak of the Sumerian language as agglutinative (as formerly described) is wrong.
- p. 53, the reference to Egyptian in ¶5 is somewhat forced. Here we have the prepositional use with auxiliaries but not with crude verbal forms (verbal nouns). In Egyptian, moreover, it is not a development within the language, but a later innovation from the outside, by which popular speech gradually displaces the simple verbal forms of the older classical speech.
- p. 66, delete line 14 "Akkadian" and insert "Assyrian."
- p. 75, to call the feminine *t* an inferiority sign is hardly correct from an historical point of view, in spite of what is stated on p. 58 about dichotomy and gender in Hamitic languages (following Meinhof). It is also out of harmony with what is stated on p. 89.
- p. 81. I am not quite sure about the Negro blood in the early Valley Egyptians, that

in the case of Egypt a somewhat nigrified Mediterranean race was infused with purer Mediterranean blood.

What we know historically seems to show that the Negroes lived much further south in prehistoric and early historic times,

than later. In historic times we notice them gradually pushing farther north. A mixing with the Negroes seems to be excluded at that period of which the author is speaking.

- p. 83, early Negro influence is certainly excluded in the case of Osiris and Set. Worrell thinks it possible that Set, an animal-headed god, may have been a Negro importation, but he forgets the fact that it was mainly in the North, in the Delta, that the Osiris-Set mythology was cultivated, and simultaneously ignores the similar Asiatic myths. The animal or animal-headed gods of Egypt cannot be explained by simply referring to them as due to Negro influences. Sokaris, e.g., was an animal god who was worshipped in the neighborhood of later Memphis. No one would claim Negro origin for him.

- p. 101. According to Worrell the Akkadians had come from the Arabian desert (as did all the other Semites), but he makes the restriction

not directly, via the Wadi ar-Rumma, but from the north, down along the course of the Euphrates.

Arabia he still regards as the home of the Semites, without clearing the difficulty that arises in this case, how any close relationship between the early Semites and Hamites could have been possible. Isolated racial movements out of Arabia, which can not have been too numerous the farther back in time we go, can certainly not explain much.

- p. 103. The estimation of Babylonian civilization remains superficial. A statement like

the most serious criticism of their culture is its materialism

is meaningless, because, *aequa lance*, all other contemporaneous culture areas in the Near East are materialistic. Egypt is no exception, for it is wrong to see a certain idealism in her beliefs in, and preparations for, a future world. After all, it was but a materialism carried over to a transmundane sphere.

- p. 119. To speak of Arabic as "the Sanscrit of Semitic languages" would be justifiable only if Arabic could correctly be considered as a primary type of Semitic. However, not Arabic, but Akkadian is much nearer to the primitive Semitic, and if such a simile is used, it can only be applied to Akkadian, not to Arabic.

HENRY FREDERICK LUTZ

INDONESIA

Musical Instruments in Celebes. WALTER KAUDERN. (Göteborg, 1927. XIII, 332 pp., 19 maps, and 130 figures.)

In this, the third volume of Dr. Kaudern's publications on Celebes, the previous studies having dealt with house types and traditional migrations, he gives us a very full and valuable account of the many forms of musical instruments in use in this island. Sachs, a few years ago, in his "Die Musikinstrumente Indiens und Indonesiens" made a significant study of the instruments of the whole Indonesian area, and now Dr. Kaudern has supplemented this by his intensive and detailed investigation of a single subdivision of the region.

In his classification Dr. Kaudern follows the fourfold grouping worked out by Hornbostel and Sachs, of (1) Idiophones, (2) Membranophones, (3) Cordophones and (4) Aerophones. After a detailed description and illustration of all the varieties found, the author proceeds to discuss their regional distribution, their origins, the occasions of their use, and the tonal range and details of construction of the large series of flutes collected. He finds that none of the instruments can be regarded as purely of Celebes origin, and that the distribution within the island presents no special features of interest. Such local differences as appear are mainly in imported forms. He concludes that gongs, some forms of bell, most of the cordophones, the oboe, and certain types of flute were derived from India: that clapper and pellet bells, together with the barrel drum, came from China and southeastern Asia; and that little is attributable to either Mohammedan-Arab or European contacts. As to their use, Dr. Kaudern finds that most of the older, native forms have some religious function, but that the Cordophones and Aerophones, most of which are introduced, are not subject to this restriction. His studies of the position of the stops in flutes show that there is a relatively wide variation and that there is no clear relation apparent between the position of the stops and the length of the flute. The range in tone is also found to be considerable, and the intervals quite variable. This degree of irregularity among a relatively developed folk, is curious in view of the careful tuning to a jealously preserved standard, which one finds among the less cultured peoples of parts of Melanesia.

For few, if any, portions of Indonesia have we such careful and detailed ethnographical studies as these which Dr. Kaudern is giving

us for Celebes. If he will but continue the series so ably begun, we shall have for one island at least, a thoroughly satisfactory presentation of the data. One can only hope that what Dr. Kaudern has done will stimulate others to secure for the remainder of the area equally complete information before it is too late.

R. B. DIXON

NORTH AMERICA

By Cheyenne Campfires. GEORGE BIRD GRINNELL. (New Haven: Yale University Press, 1926.)

This book is a collection of some sixty Cheyenne tales. It is "all story" except for the brief introduction and the paragraph of explanation before each section. Mr. Grinnell has the happy facility for feeling behind the words of his story and the awkwardnesses in its translation, to its underlying literary quality. And he has the further knack of retaining this quality in readable, frequently charming, English prose—this, without injecting either personal or cultural elements foreign to the original genius of the tale. It is to the recently widening circle of adult and child readers, who are developing a certain discriminating interest in American Indian folk-tales, that the volume under review will have its greatest appeal. In the sections devoted to hero myths and mystery stories, Plains prose narrative is to be found at its best, and the book in its entirety gives a complete and balanced picture of the body of Cheyenne literature. Comparable collections done with equal skill and integrity are unhappily so rare that one can but hope that at least Mr. Grinnell, like his Cheyenne story tellers, will go on and "tie another one to it."

THEODORA KROEBER

The American Indians and Their Music. FRANCES DENSMORE. (New York: The Womans Press.)

In this little book, Miss Densmore is obviously discussing the subject for the non-anthropologist. In order to give a setting for the music she describes some phases of Indian life. The intention is very good, but the examples are drawn from such a scattering of tribes that the ordinary reader would be bewildered. On the other hand, some statements are so general that they lose their accuracy. Several chapters in the early part of the book are unnecessary, having no ostensible connection with the subject. Such are those on Famous Indians and Mound Builders.

When Miss Densmore is dealing directly with her own field, she is at her best. The chapter, "Why do Indians sing?", makes the point that Indians expect to accomplish something with song. They do not sing for mere entertainment. Equally good are the remarks on the peculiarities of Indian music. These avoid technicalities and bring out several striking features differing markedly from the European tradition.

The final chapter on "Adaptations of Indian Music" is a catalogue of composers who have used Indian themes. It offers no criticism, nor is there any comment on the desirability of merging the two musical traditions.

On the whole it is a good book to put in the hands of one who cares to know something about the subject with the least amount of mental effort.

ERNA GUNTHER

The Story of the American Indian. PAUL RADIN. (New York: Boni and Liveright, 1927. 371 pp., 30 pls.)

This interesting and interestingly written book is a history of aboriginal America for the fifteen hundred years preceding the discovery. The narrative thread is the development, dissemination, and mixture of native civilization. The fundamental ideas are those first outlined by Boas, systematically substantiated by Wissler, developed in special fields by Spinden, Morley, Kidder, Kroeber, Swanton, Uhle, and others, and now carried still farther by Dr. Radin: higher culture originating in Middle America with the Maya area as a focal point, raying out, gradually weakening and altering through infiltration with various simpler cultures of local origin. The presentation is popular. Pictures are abundant and chosen for intrinsic interest rather than with precise reference to points in the text. Footnotes, bibliography, mention of contrary views, discussion of moot-points, are all avoided. Nor is there analysis of evidence: the work is an immediate and complete synthesis. The presentation is narrative, as of recorded events and sequences; the style is warm without sentimentality, often charming, literary rather than scientific. The chapter titles are indicative; for instance: Prologue—The Golden Day; First Census of the New World; The Glory that was Maya; The Reign of the War Gods; The Children of the Sun [Peruvians, not Egyptians]; The Epic of the Wanderers: From Cliffs to Pueblo; Where the Women Ruled; Where the Shadows Stopped; Epilogue—The Heel of the Conqueror.

Dr. Radin's specific historical hypothesis around which he builds up his book is in substance as follows. The origin of Maya civilization is an unsolved problem. On the abandonment of the old Maya cities under pressure of barbarian foes and the jungle, the Maya themselves, or their culture, pushed eastward to Oaxaca, forming the Zapotec-Mixtec culture, and along the Atlantic coast to Vera Cruz. These two waves, plus a third—archaic Maya, with maize, pottery, loom—"united to form the Toltec" with a center about Tehuacan. Toltec influence rolled northward, resulting finally in the Pueblos. From Vera Cruz the Maya, or the people who preserved some of their culture intact, took boat to the mouth of the Mississippi and became the Mound Builders. The further fortunes of their culture can be traced in Natchez, Creek, Iroquois, Pawnee, Winnebago, etc., as a gradual fading out. In South America, the earliest culture center, due to the Maya, was on the North Peruvian coast. Upon this center Colombia, Ecuador, Tiahuanaco, Cuzco, Calchaqui are dependent; also such elements of higher culture as have seeped east of the Andes. The Taino culture is a blend of pre-Inca Peruvian and Maya strains; the Araucanian is essentially Inca. The North Pacific Coast culture derives in part either from Neolithic southeast Siberia or from Oceania.

All this is no more speculative than a number of views which have been advanced as science. But it would have to be supported by some show of evidence—something more than a statement of view followed by animated description—in order to be considered for scientific acceptance. An attempt to validate the theory might be worth while—stimulating at any rate.

A number of errors shake the confidence of the reader. The Seminole, who are subsequent to 1700, are mentioned as in the southeast by 1000 A.D. (p. 37). Teotihuacan is placed 16 miles instead of about 30 from Mexico and has three pyramids on page 47, two on page 160; where also the obsidian-eyed sculptures (of the Citadel or Temple of Quetzalcoatl) are attributed to the temple on (*sic*) the Pyramid of the Sun. Cortez is made to *storm* Mexico City in 1519 (p. 52). The Maya knew the lunar year of twelve 30-day months (p. 72). On page 368 Smohalla is apparently made the founder of the Ghost Dance (Nevada origin, Wounded Knee, etc.). To the layman these slips may not matter; they are disconcerting to Americanists.

Dr. Radin is at his best in seizing the psychological qualities of cultures. For instance, speaking of the Pueblos:

They did what all hard-pressed people do: they retired within themselves and attempted to find solace and happiness through an inward adaptation. They became introverts of the most pronounced kind and reorganized their old life in terms of ritualism and symbolism. Individualism was almost eradicated; priests, secret fraternities, and the bureaucracy reigned supreme. To accomplish this the world had to be renounced and with it all expectations of conquest and the spread of their specific culture to other regions. They paid the price and preserved what they had. But they were to have no great influence on the further cultural life of aboriginal America with the possible exception of the Pawnee.

The ritualism and conservatism which permeates every corner of Pueblo life today is based upon two factors—the consecration of the past that was in the process of ceasing to function and whose original meaning had long been forgotten, and the fixity that had grown out of isolation and passiveness. It represents a drawing-in on all sides, a going into retreat. And this historical development has been illuminatingly symbolized by a cardinal fact in the Pueblo ritualistic system—the going into retreat of the fifteen sets of priests who are, *par excellence*, the spiritual guides of the people.

Or of the Blackfoot:

Their culture illustrates remarkably well the unlimited possibilities that the entry in the Plains and the contact with more highly civilized peoples meant for the barbarian north. The Blackfoot participated in everything that they found there, but yet we always have the feeling that they did not know exactly what to do with the sparks flying all about them. One thing, however, they were taught—how to organize their simple shamanistic performances and, how in this way, to give them a corporate significance that they had never before possessed.

In similar spirit, the Prologue is a vivid setting forth of some of the most characteristic aspects of Winnebago culture.

It is these intuitional insights that give the book a distinctive flavor and value. They are akin to the semi-aesthetic perceptions that have made the work of the great historians live. Where Dr. Radin differs from Tacitus and Gibbon is not so much in spiritual quality as in the fact that he has spared himself most of the laborious effort which they imposed on themselves. He appears to have read widely, but from intrinsic pleasure of interest rather than with systematic intensiveness or exactness. His hypothesis, so far as it is special and new, appeals as a sudden and more or less happy snatch, not as a growth resulting from long concentration or even a sustained emotional attitude. Midnight hours may have gone into this book; but not a drop of sweat. It is tossed off. It is half *tour-de-force*, half challenge—or at least provocation. When Dr. Radin comes to take contemporary anthropology seriously, anthropolo-

Once more the anthropological reader feels profoundly grateful for the enterprise of the publisher in providing this profusely illustrated and in most respects admirable work of reference.

ROBERT H. LOWIE

Studies on the Origin of Cultivated Plants. N. VAVILOV. (Bulletin of Applied Botany and Plant-Breeding. 26: 1-248, 139-248 in English, maps in the Russian text, Leningrad, 1926.)

This monograph, dedicated to the memory of De Candolle, seems to be the most substantial contribution made since his day to the history of our main cultivated plants. Vavilov particularly stresses the importance of a strict differentiation of a cultivated plant into Linnean species; and the "determination of the centres where the diversity of genetically allied species is concentrated." Thus, in contrast to De Candolle, who assumed a single origin for all cultivated wheats, the author recognizes three "genetical groups of species," distinguishable by the number of chromosomes and showing in crossing with one another complete or partial sterility while species within the same group are readily crossed with one another and yield fertile offspring. Applying his second point to the group of *Triticum vulgare*, Vavilov finds that

The entire diversity of morphological and physiological characters, established at present for soft wheat is contained in the mountainous districts of South-Western Asia (p. 156).

On the other hand the *Triticum durum* type by the same token is connected with Northern Africa, and the third type is traced to Asia Minor and the adjoining region (pp. 158-162).

Similarly, two autonomous centres-- one in Abyssinia, the other in South-eastern Asia-- are recognized for barley. Crosses between the two groups resulted in a marked partial sterility (pp. 168-173). Even more definitely polyphyletic are the species of oats, of which five geographical and genetical groups are recognized. Contrary to the received opinion that *Avena sativa* is a definitely European crop, Vavilov finds many varieties of it in Mongolia and Northern China, while the genetically kindred *A. nuda* forms

belong in their whole diversity exclusively to China and the Southern adjoining countries. (pp. 173-178)

Regarding millet, Vavilov makes some unexpected statements. He accepts Buschan's conclusion that the cultivation of this crop in Egypt in prehistoric times is not proved

and remarks that

Evidently, millet has moved from Asia into Europe together with the nomads.

The maximum of diversity is displayed by Eastern and Central Asia (pp. 178-181). This criterion leads the author to seek the origin of flax in or near India, where (as he points out) it is raised exclusively for oil, while in Asia Minor and ancient Egypt this is combined with the cultivation for fibre (pp. 182-195).

In agreement with Engelbrecht, Vavilov derives cultivated rye from weed-rye mixed with wheat and, to a lesser extent, with barley.

The whole diversity of the forms of rye, the varietal riches, are concentrated in regions where rye as a cultivated plant is either of secondary importance or of no importance at all.

that is, in Afghanistan, Persia, Transcaucasia, Asia Minor, and Turkestan. Here rye is simply considered a nuisance jeopardizing the real crops of wheat or barley. But in the mountain districts of Bokhara, Afghanistan, and Asia Minor,

rye from a weed gradually changes into an independent crop,

pure rye being sown at an altitude of 2000 m. and upward.

It is a curious fact, that at the border line of the struggle between winter rye and winter wheat it is an ancient custom with the farmers to sow out a mixture of rye and wheat. Not expecting to obtain a return of wheat every year, the farmer sows out the mixture of rye and wheat on purpose, hoping that if the wheat is killed by an adverse winter, rye will stand it and produce at least half of the expected yield.

In this case also the author contends for a plural origin of the cultivated crop (pp. 196-209).

Similar to the connection of rye with wheat is that of oats with emmer, of *Eruca sativa* with flax, and of several other plants, all of which Vavilov separates as "secondary crops" from the "primary" group including wheat, barley, flax, rice, and cotton (pp. 209-217).

Unfortunately, it is impossible now to restore the process of introduction of oats into cultivation, as the initial crop, emmer, has vanished to a large extent and many stages of the history of cultivated oats cannot be traced back in detail. We see here a curious fact of a crop being carried into the North by another, at the present time an almost extinguished one.

Since the

entire varietal and racial diversity of the field and vegetable crops is concentrated in mountainous districts,

gists are likely to take more seriously his productions as well as his unquestioned gifts.

A. L. KROEBER

MISCELLANEOUS

Reallexikon der Vorgeschichte. Herausgegeben von MAX EBERT (Berlin: Walter Gruyter & Co. Vol. 8, 548 pp., 178 pls. 45 M subscription, 54 M trade. Vol. 9, 322 pp., 244 pls. 42 M subscription, 50.40 M trade. 1926, 1927.)

The previous volumes of this gigantic work have already been commented upon in the *AMERICAN ANTHROPOLOGIST* (27: 561, 1925, 29: 332, 1927). Volumes 8 and 9 once more provide a wealth of material from which it is difficult to single out articles for special comment.

In volume 8 a large series of general ethnological articles may be noted from the pen of Dr. Thurnwald—*Mana*, *Mannbarkeit*, *Männerbund*, *Mannerhaus*, *Männerkindbett*, *Markt*, *Meidung* (= Avoidance), *Menschenopfer*, *Moral*, *Mutterrecht*, *Nahrung*, *Name*. As a rule these essays are crammed with facts, endeavor to do justice to the literature for the whole world, and are marked by the author's customary soundness. A curious error may be noted on page 456, where the "Poda" figure as a matrilineal North American tribe with peculiar usages, which even with a double page reference to American sources fail to identify it.

The Palaeolithic is again dealt with by Professor Obermaier, whose treatment of the Mousterian (p. 314 sq.) introduces us to his latest conceptions. According to these, a dual origin is assumed in Europe. The "Klein-Moustérien," in consonance with earlier expositions, is rooted in the Pre-Mousterian of Eastern Europe, in the northern parts of which it evolved into its classical form, which spread to neighboring regions in successive waves. On the other hand, the "Moustérien von Acheuléenmorphologie" developed from the Later Acheulean, continuing its traditions, but becoming degenerate and ultimately extinct. The two cultures are supposed to have intermingled and fused west of the Rhine. In the Mousterian there is a strong tendency toward local differentiation, rendering a finer classification difficult, especially for the primitive and atypical forms. It is strange that no reference is made to the finds of Licent and Teilhard de Chardin. Considering Obermaier's localization of a "faustkeilfreies Primitiv-Paläolithikum" in Eastern Europe, the

occurrence of a Mousterian culture in China might be supposed to appear significant to him.

Of the other archaeological articles, some are of purely local interest, such as E. Rademacher's on *Niederrheinische Hügelgräberkultur* (pp. 483-498). Those on Menhirs (P. Thomsen, W. Bremer, Serra-Ràfols) and Megaliths (Wilke, Bosch-Gimpera, v. Duhn, Roeder, P. Thomsen) have a wider appeal, and Karo's treatment of Mycenaean culture will prove valuable for the classical student. Schuchhardt's otherwise instructive discussion of the Neolithic suffers from a parochialism of outlook, both spatially and temporally. The evolution of the Neolithic from the Mesolithic ("seine Herausbildung aus den roheren mesol. Formen") is put about 4,000 B.C., the Full Neolithic between 3,000 and 2,000 B.C. It is not clear how the author conceives these estimates to accord with the chronology of the Near Orient.

A very full article by Kiekebusch is devoted to the German museums and private collections (*Museen und Sammlungen*).

As in previous volumes, there are succinct paragraphs on topics connected with the history of medicine, such as Massage, by Professor Sudhoff, the principal German authority.

Volume 9 is overwhelmingly archaeological, virtually three of its six installments dealing with Scandinavia and North Germany under the caption of "Nordischer Kreis." There are also substantial essays on Austria, East Prussia, and North Africa. In the latter, Obermaier calls attention to the extraordinarily interesting Sbaikian culture of Tunesia, which is pre-Aurignacian and post-Acheulean, and appears also in the Manzanares valley in the midst of Mousterian strata (p. 111 f.). The type implement of the Sbaikian is a very thin leaf-point, averaging 7-8 cm. in length. Both faces are carefully fractured, thus simulating the Solutrean laurel-leaf blade. Obermaier insists that the resemblance is merely external

insofern sie nicht die feine, dunnschuppige Solutrén-Retusche besitzen, sondern einfachhin eine feinmuschelige Oberflächenretusche. . . . Sie könnten daher, morphologisch, nur mit den gröberen Protosolutrén-Spitzen Ungarns oder mit unfertigen Haustücken des westeurop. Solutrén verglichen werden.

This, however, is sufficient to establish the extremely important theoretical point of independent development from diverse starting points (convergence).

The articles on "Omen," "Opfer," "Orakel" are by Dr. Thurnwald.

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Since the

entire varietal and racial diversity of the field and vegetable crops is concentrated in mountainous districts,

the author deprecates the theory that agriculture evolved in the great river valleys ordinarily connected with the higher civilizations and favors its origin in such areas as the Caucasus, mountainous Bokhara, Afghanistan, Asia Minor, and Abyssinia (pp. 218-220).

Concerning hemp (pp. 221-233), Vavilov points out that wild and weed hemp settle on rich fertilized soils; they thus naturally followed man

keeping near his dwelling places, settling on rubbish and everywhere where the soil was manured . . . During famines, when man turned to the seeds and fruits of wild plants, he naturally chose hemp with not shattering large fruits.

Later hemp was utilized for fibre, hashish, and finally for oil manufacture.

To account for the origin of the primary crops, the author advances the ecological principle, foreshadowed in the discussion of hemp, that wild species form one ecological group with the most closely related cultivated plants.

The nearest wild forms must be sought in conditions approaching those of cultivation . . . There is little doubt that the primitive species of some wild plants had already ecological tendencies, which induced man to utilize them. It is evident to us, that man took in most cases what was offered to him. For many plants the process of their introduction into cultivation took place almost independently of the will of man (pp. 234-236)

Geographically regularities are noted in so far as the Mediterranean area produced large-fruited, large-seeded and large-flowered forms, while in Southwestern Asia (India and vicinity) there are small-seeded, small-fruited and small-flowered forms (pp. 237-240).

At least five world centres of cultivation are defined (pp. 241-245).

(1) South-western Asia, including India, Persia, Afghanistan, Asia Minor and Transcaucasia, has given rise to soft and club wheats, rye, small-seeded flax, small-grained peas, lentils, horse-beans, cotton (*Gossypium herbaceum*, *G. arboreum*). (2) Southeastern Asia, including mountainous China, Japan, Nepal and adjoining regions, is connected with naked oats, hull-less barley, millet, etc. (3) The Mediterranean, including Northern Africa, as well as Palestine, Syria, parts of Asia Minor and Southern Europe, produced durum wheats, a series of oat species, of large-seeded flax, large-grained peas, horse-beans, lentils, beet-root, etc. (4) Abyssinia has a great diversity of hulled barley forms, violet-grained wheats, original races of peas, peculiar races of oats. (5) The New World centres.

An Island centre, including the Philippines, is referred to as a probable sixth area, but one not yet adequately studied.

It cannot fall within an anthropologist's province to criticise the botanical findings of such a monograph. The purpose of this review is merely to direct the attention of culture historians to a monograph otherwise easily overlooked by them and which, notwithstanding its repetitiousness and occasional anthropological naïveté, contains a vast amount of suggestive material for us. One point, however, may be made regarding the constantly stressed multiple origin theory advanced by Vavilov. From the botanical distinctness of species-groups it does not follow that the *idea* of cultivating a plant such as wheat evolved independently: that idea may well have been diffused, the borrowers applying it to new forms of the same genus.

ROBERT H. LOWIE

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REPORT

ANTHROPOLOGICAL SOCIETY OF WASHINGTON, 1927

On February 3, 1927, Mrs. Zelia Nuttall, of Coyoacan, D. F., Mexico, addressed the Society on the subject: "New Light on Ancient American Calendars." Mrs. Nuttall reviewed the evidence for her now well-known theory of the origin of the Maya and Aztec calendars, a theory first proposed at the Oxford meeting, 1926, of the British Association for the Advancement of Science. As all the centers of ancient American culture are situated within the tropics, the inhabitants had a very simple means at hand for learning the true length of the solar year. The sun itself registered it for them, for within this zone the sun passes twice a year through the zenith, causing the striking phenomenon that, for a moment about noon, all vertical objects are shadowless.

Mrs. Nuttall submitted an array of evidence—historical, documentary, archaeological, and photographic—to substantiate her conclusion that Mexicans, Mayas, Ecuadorians, Peruvians, and others inhabiting this zone observed the strange periodical disappearance of shadows and interpreted it as "a descent of the Sun-God." As this descent is always immediately followed by rains caused by the heat of the vertical solar rays, this momentary descent, which marked the advent of the rainy season, was of transcendental importance to the native agriculturists. After this "descent of the god" they could confidently sow the seeds of maize and other food plants with a certainty of rain.

The theory would explain why, as civilization gradually advanced under favorable conditions, this phenomenon, first observed by means of any vertical staff, pole, or stone, led to the erection of pillars, stelae, altars, towers, shrines, and the temples ultimately erected on the summits of pyramidal structures, which were to serve as worthy seats or places of rest for the descending Sun-God and constituted constant invitations for him to descend and linger.

On February 24, 1927, Dr. Alfred V. Kidder spoke to the Society on the "Cliff-dwellers of Arizona and their Predecessors." The South-western archaeological field, the speaker pointed out, embraces those parts of Arizona, New Mexico, Colorado, and Utah, which contain the remains of the sedentary, agricultural type of Indian,

commonly known as Pueblos. The present range of the Pueblo Indians is restricted to the drainage of the Rio Grande and the Little Colorado. Ruins of ancient villages closely similar to those of the historic Pueblos are found throughout an infinitely greater range. They consist of cliff houses, valley towns, and mesa top dwellings, ranging in size from a half dozen to a thousand rooms.

The problem of Southwestern archaeology is the arrangement of these ruins in relative chronological order and the determination of the origin and growth of the culture responsible for them. Until about fifteen years ago the early stages of Pueblo civilization were not recognized. The explorations of the Peabody Museum of Harvard, the Natural History Museum of New York, the National Geographic Society, and other institutions have resulted in the discovery and description of these early stages, the first being the Basket Maker, a phase marked by primitive agriculture, lack of pottery and of stone architecture. This was followed by the Post-Basket Maker period which saw the introduction of pottery and the beginnings of masonry construction. The Post-Basket Maker was succeeded by the pre-Pueblo, in which pottery was greatly improved, houses were enlarged and strengthened, and the typical massed type of dwellings first introduced. We are thus now in possession of the outline of the entire growth of the Pueblos from nomadism up.

On March 17, 1927, Mr. Matthew W. Stirling, who had just returned from a several months' exploring expedition among the Pygmy and other native peoples of Dutch New Guinea, gave an address upon "Recent Explorations in Dutch New Guinea." The interior of the island is largely unknown, as it has never been completely mapped or penetrated. The purpose of the expedition under Mr. Stirling's leadership was threefold: the making of maps; completion of our knowledge of the country; and a study of the peoples inhabiting this region. The expedition was scientifically outfitted, and motor boats and an aeroplane were used as means of transportation. Entrance was effected from the northern coast, thence up the Rouffaer river, to the central range known as the Nassau mountains, one of the greatest ranges of the world.

The island is inhabited mainly by Papuans, of whom three distinct groups were visited: those of the coast, those of the great Lake plain, and those of the Van Reese mountains. The foothill region, after leaving the Lake plain, is uninhabited for a distance of about thirty miles. After passing this belt, the Negrito people are encoun-

tered. The average height of the men is 152 cm., that of the women 145 cm.

A permanent camp was established at Tombay, located in the interior of the Nassau mountains. The people have an advanced system of agriculture, of which the staples are: sweet potatoes, sugar cane, taro root, bananas, and lemons. They have a loose type of clan organization. They are polygamists in theory and monogamists in practice. They believe in some form of immortality, but their religious concepts were hard to investigate, as they were very reluctant to discuss anything concerning these matters. The Pygmies bury their dead, while the Papuans practice platform burial near the home of the deceased.

On April 21, 1927, Mr. Frederick W. Hodge, of the Museum of the American Indian (Heye Foundation), addressed the Society on "The Zuñi Indians of New Mexico." Mr. Hodge reviewed briefly the history of the Zuñi Indians during the Spanish régime, commencing with the year 1539, when their pueblos first became known to civilization as the "Seven Cities of Cibola." A glimpse of Zuñiland, together with views of the salt-gathering ceremony at the sacred Salt lake, was offered in motion pictures. Other motion pictures illustrated the process of pottery-making from the preparation of the clay, through the fashioning and painting of water-jars and food-bowls, to the finished receptacles. The grinding of corn and manufacture of wafer-bread, one of the most ancient and still the most important food staple of Zuñi, was illustrated as further showing a part of the domestic life of a people whose primitive customs have been little changed.

Still retaining most of their ceremonies of old, the Zuñi perform rites at their sacred Rainbow spring for the purpose of bringing rain, the ceremony being in the native belief the direct cause of the first showers for nine months. Following this rite, on the next day, a masked rain-dance is performed at the main pueblo of Zuñi. Motion pictures of both ceremonies were shown, illustrating also the dance steps and the costumes of the participants, together with the antics of the "mud-head clowns." A very lively impression was given of religious ceremonies that probably have been practised unaltered for many centuries.

On October 25, 1927, an address was given by Dr. John M. Cooper on "Field Notes on Northern Algonkian Magic and Divination." In order to determine the limits of western extension of a number of culture traits that are characteristic of the Tête de Boule and Montag-

nais-Naskapi tribes of Quebec and Labrador, the speaker undertook last summer, 1927, a reconnaissance of the Cree and northern Ojibwa bands of the southern and western James Bay region and of the Albany River area. The belt covered extended about a thousand miles westward of the St. Maurice river to the source of the Albany river and averaged about two hundred miles in breadth.

Scapulimancy, or divination by the marks and cracks on flat bones held against the fire, was found to extend continuously from the St. Maurice section to half way up the Albany, and an apparently reliable report was obtained of its occurrence as far west as the country north of Lake of the Woods. Scrying, or divination by peering into water in a dish or into some substitute therefor, was found universally distributed throughout the area studied. Other types of divination, common especially in the eastern half of the area, are those carried out with otter carcasses or otter paws, with beaver haunch bones, with beaver shoulder blades, with bear skulls, and with grouse wish-bones.

Foetal inclusions are universally used in hunting magic, as are also singing and drumming for game. The caribou bezoar is used in the eastern section of the area. To bring the north wind, the buzzer, the bull-roarer, and the snow man are resorted to. A number of cradle charms are used, particularly the bit of navel string attached to the cradle bow. The cylindrical or barrel-shaped conjuring tent, that has been reported from various points from northern Labrador to Minnesota, was found of universal extension over the whole belt studied, as was also the whole conjuring complex that is associated with this very distinctive type of tent. In fact, throughout the whole belt is found a culture fundamentally identical in all its features, material and social, with only minor local differences.

On November 22, 1927, an address was given by Mr. Frank H. H. Roberts, Jr. on "A Late Basket Maker Village in the Chaco Canyon." A Late Basket Maker village consisting of 18 houses, 48 storage bins, and a kiva excavated in the Chaco canyon, New Mexico, during the summer of 1927, by Mr. Roberts, has given considerable information as to the house-type of the period.

In general, the crude, one-room domiciles consisted of an oval or rectangular excavation, $2\frac{1}{2}$ to 3 feet deep, 12 to 14 feet in diameter, roofed over with a pole, brush and plaster superstructure. The earth walls of the excavation were lined with large stone slabs, which in turn were covered with adobe plaster. Four posts set in the floor a

short distance from the walls supported the superstructure. These posts carried a rectangular framework against which the upper ends of small poles, the lower ends of which were embedded in the earth around the periphery of the excavation, were placed. The latter formed the sloping upper walls of the house. The rectangular space at the top probably had a flat roof with an opening in the center to serve as a smoke-hole, possibly on occasions as an entrance. The entire wooden structure was then covered with twigs, bark, leaves, earth, and plaster. In the center of the room was an oval or rectangular firepit, on the north side of which was a small, circular hole which is probably analogous to the sipapu of kivas.

Most of the houses appear to have had an entry-way on the south or southeast side. The doorway of the main room gave access into a short passage, which in turn opened in a small oval room. The ante-chambers of these domiciles are quite suggestive of the entry-ways into earth lodges built by modern Indians, by the Eskimo, and even by the Palaeo-Asiatic peoples.

The kiva was constructed of slabs in much the same fashion as the dwellings. The inner circle, forming the face of the bench was of smaller slabs than the outer or wall of the room. The diameter above the bench was 40 feet and inside the bench 36 feet. There was a central firepit, a deflector on the south side, but no other features in the room. The roof was supported on four large posts. It is quite possible that in this structure is to be seen the predecessor of the great kivas of the Chaco pueblo cultures.

Burials were scattered throughout the village. Skeletal remains showed a group of people with long heads, undeformed. There were very few mortuary offerings. Bowls accompanied three of the interments while the other graves had no funerary furniture.

JOHN M. COOPER,
Secretary

DISCUSSION AND CORRESPONDENCE

A WINNEBAGO EXPLANATION OF EFFIGY MOUNDS

During a recent study of Winnebago music, the writer obtained a unique explanation of effigy mounds. This musical study, for the Bureau of American Ethnology, was conducted near Galesville, Wisconsin, the principal singers being descendants of a prominent Winnebago named Thunder. The work was chiefly done in a permanent camp where they engage in basket-making and sell their product to tourists who pass on the state highway. Not far from this camp is a group of eight effigy mounds, and the site of an old battlefield where the Winnebago fought the Sioux until both sides were "almost exterminated." The singers included John Thunder, who also acted as interpreter, Bill Thunder, Tom Thunder (all of them sons of the Thunder of the past generation), David Little Soldier (a son-in-law of Thunder), and a Winnebago now residing at Trempeleau, Wisconsin, who came of a line of medicine-men and is familiar with the old customs.

The group of effigy mounds was visited and photographed by the writer. The outline of the mounds is well preserved and the longest was found to be about 110 feet in length.

John Thunder was asked concerning the history and purpose of the mounds and replied without hesitation that they were built by Winnebago and were refuges in time of war. He said that a man's "dream animal" told him to make a mound in its likeness, and to hide inside it if he were in danger. This was the "dream animal's" manner of protecting him. John Thunder said there was space inside the mound for storage of food, and that the entrance was concealed so that no one could see it. In this manner several persons could remain in hiding for a reasonable length of time. Later the other members of the Thunder group and the Winnebago living at Trempeleau were interrogated and, in the matter-of-fact manner of the first informant, said that was what they had always understood to be the history and use of the mounds.

Dr. Paul Radin, in his work on the Winnebago tribe (*The Winnebago Tribe*, 37th Rep. Bur. Amer. Ethn., 79-82, 1923) classifies the mounds as effigy, linear, and intaglio, and states that a number of the older people claimed to have distinct recollections of the erection of some of them.

His conclusion is that "these effigy mounds were, to all intents and purposes, property marks," and were erected "on every plantation owned by a certain clan." The explanation given to the writer does not entirely contradict this as the likeness of a dream-animal would naturally be near the abode of the person under that animal's protection. Radin notes that the Winnebago have no turtle clan, yet there are many mounds in the shape of a turtle. Among the Winnebago, as among the Ojibwa, the turtle was regarded as a great warrior, so it is not unreasonable to suppose that a turtle might desire to shield a warrior by its image on the earth. This, of course, is the "great turtle," not the common turtle beside a stream or pond.

The linear mound is described by Radin as

"a straight, wall-like mound of uniform width and height . . . usually about 2 1/2 feet in height and from 10 to 20 feet in width. Some are so short that they approach the oval and platform mound types while the longest are over 900 feet in length."

The intaglio mounds are "excavated out of the soil instead of erected on it." Is it possible that these are effigy mounds that have caved in?

The "medicine" of an Indian protected his family as well as himself. This has been frequently stated to the writer, and while a definite instance of the protection of an entire family by a dream-animal is not recalled, it is reasonable to suppose that a benefaction would extend to a man's relatives. The Winnebago who were questioned did not hesitate to say the mounds were made to shelter many persons. Is it possible that skeletons found in mounds, if not arranged as for burial, are the skeletons of persons who took refuge in such underground shelters?

The foregoing is offered as an observation among one group of Winnebago and should not be construed as offering a theory on the general subject of Indian mounds.

FRANCES DENSMORE

WHY NOT MORE CARE IN IDENTIFYING ANIMAL REMAINS?

The April-June number of the *AMERICAN ANTHROPOLOGIST* for the current year (1928) contains an illustrated article by Wm. S. Webb, entitled "A Prehistoric Village Site in Greenup County, Kentucky." Mention is made of "what appeared to be a headdress of cut animal jaws." These jaws, twelve in number, are shown in whole or in part on plates 6 and 7. They were identified by the Department of Zoology, University of Kentucky, as jaws of the big wolf, *Canis occidentalis* (p. 276).

A glimpse at the figures shows that there is not a wolf among them; they are jaws of the common wildcat, commonly known as bobcat, an animal belonging to the genus *Lynx*. Three of the figures on plate 6 and one of the jaws on plate 7 show the distinctive bicuspidate lower carnassial of the cats.

Five years ago it became my unpleasant duty to call attention to some equally glaring false identifications of copper effigies from the Mound City Group in Ohio—though these happened to be of birds instead of mammals (AMERICAN ANTHROPOLOGIST, n.s., 25: 424-425, 1923).

Is it not a dreadful thing to put such erroneous identifications on record?

C. HART MERRIAM

THE GLOZEL AFFAIR

Recently a French professor of the Sorbonne on his return from a visit to the United States, where he had been lecturing, reported that in America French prehistoric archaeologists were being made fun of for being taken in by the specimens found at Glozel. I think it only fair to draw attention to the fact that of the prehistorians of the first rank in France but three to my knowledge have acknowledged their authenticity. Among those who do not consider the objects as prehistoric specimens are, alphabetically, Madame Barnett, Begouen, Boule, Breuil, Capitan, Champion, Favret, Forrer, Lantier, Henri Martin, de Mortillet, Peyrony, Regnault, Vayson de Pradenne, and Verneau, to these should be added the late H. Hubert.

As stated in the report of the International Commission this does not exclude some genuine objects, but all are agreed that the Station of Glozel does not present a prehistoric aspect.

This verdict was arrived at by the Section Préhistorique de la Commission des Monuments Historiques (acting under the Ministry of Public Instruction and Fine Arts) at a recent meeting.

The vote was on the question of raising the official "Classement" of Glozel, whereby the State controlled all excavations.

The "Classement" was voided by a unanimous vote, save one, that of Salomon Reinach; besides him Mayet and Depéret of Lyon are the only outstanding prehistorians in France who accept a prehistoric Glozel, as far as I know.

Those who do are largely specialists in other branches of archaeology and palaeography.

The sceptics have been so roundly abused for their obstinacy and unbelief, that it is a little ironic that they should be derided for their credulity.

CHARLES PEABODY

ANTHROPOLOGICAL NOTES AND NEWS

1928 MEETING OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION

The American Anthropological Association is to meet jointly with Section H of the American Association for the Advancement of Science in New York City, December 27 to January 2. Headquarters will be at the American Museum of Natural History, 77th Street and Central Park West. The hotels of New York City have been thoroughly canvassed and very favorable rates secured. A list of these, together with prices of about 100 hotels, will be published in *Science* in the near future.

A BILL TO PROMOTE ETHNOLOGICAL RESEARCH AMONG THE AMERICAN INDIANS

An appropriation to provide for cooperation by the Smithsonian Institution with state, educational, and scientific organizations in the United States for continuing ethnological researches among the American Indians, was approved by the Senate on May 8, when it passed the McKellar bill, which contains the following provisions:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Smithsonian Institution is hereby authorized to cooperate with any state, educational institution, or scientific organization in the United States for continuing ethnological researches among the American Indians and the excavation and preservation of archeological remains.

Section 2. That there is hereby authorized to be appropriated, out of any money in the treasury not otherwise appropriated, the sum of \$20,000, which shall be available until expended for the above purposes:

Provided, That at such time as the Smithsonian Institution is satisfied that any state, educational institution, or scientific organization in any of the United States is prepared to contribute to such investigation and when in its judgment such investigation shall appear meritorious, the secretary of the Smithsonian Institution may direct that an amount from this sum equal to that contributed by such state, educational institution, or scientific organization, not to

exceed \$2,000, to be expended from such sum in any one state during any calendar year, be made available for cooperative investigation:

Provided further, That all such cooperative work and division of the result thereof shall be under the direction of the Secretary of the Smithsonian Institution.—*Science*.

EXPEDITION TO RUSSIAN TURKESTAN

Fragments of a lost race of white men, marooned on lofty mountain ranges in interior Asia among a sea of Mongol folk, are among the objectives of an expedition participated in by German, Austrian, and Russian scientists. The group goes into territory hitherto never explored by Europeans, under the leadership of W. Rickmers, of Bremen, who conducted a German expedition into Turkestan some years ago.

The mountain regions to be investigated are known as the Transalai and the Seltau. They are parts of the Himalaya uplift, lying to the northwest of the "roof of the world," in Russian Turkestan. Formerly they were lumped together under the name Pamir.

It is believed that their inhabitants are remnants of Indo-Germanic races, descendants of the stock that populated India and Europe. The theory is that they sought refuge in these mountains when the Mongols overran Asia during the Middle Ages, and have remained there ever since. One of the members of the expedition is a specialist in the structure of languages; he will try to gain some clue to the ancestry of the mountain folk from their speech.

Other members of the party will represent the sciences of geology, geography, meteorology, and natural history. Four expert mountain climbers will accompany the party for the purpose of scaling the more difficult peaks and making a study of the high glaciers.—*Science*.

SOCIAL SCIENCE ABSTRACTS

The editorial offices of Social Science Abstracts have been established in Fayerweather Hall, Columbia University. The location is made possible through the generosity of Columbia University.

At its April meeting, the Social Science Research Council appointed the following committee charged with full administrative and financial responsibility for establishing Social Science Abstracts: Dr. Isaiah Bowman, American Geographical Society, Chairman; Dr. Davis R. Dewey, Massachusetts Institute of Technology; Dr. Ellsworth Faris, University of Chicago; Dr. Carlton J. H. Hayes,

Columbia University; Dr. Frederic A. Ogg, University of Wisconsin; Dr. Frank A. Ross, Columbia University; and Dr. Clark Wissler, American Museum of Natural History.

Dr. F. Stuart Chapin, University of Minnesota, was appointed Editor-in-chief for the first year. A staff of associate and assistant editors and specialists are now at work on gathering materials and testing out in practice abstracting the preliminary draft of a system of classification for the Social Sciences. This scheme of classification is the result of careful work on the part of twenty-one specialists in the field of the Social Sciences who have studied the problem for the past three months.

Meetings of a group of international specialists on abstracting in the Social Sciences will be held in Paris in June and in Geneva in July. Dr. Chapin has gone to Europe to officially represent Social Science Abstracts at these conferences and to make European connections for Social Science Abstracts.

A complete staff of specialists will begin work at Columbia early in the fall. Social Science Abstracts will be published monthly and it is expected that 20,000 abstracts a year will be printed. The fields covered will be: Cultural Anthropology, Economics, History, Human Geography, Political Science, Sociology, and Statistics. Relevant materials from other fields such as Law will be included.

ANCIENT SKELETONS FROM ALGERIA

While Cro-Magnon man ruled Europe, twenty-five thousand years ago, he had as neighbors in Africa a race who used tools and weapons like his own, but who in their bodily makeup so closely resembled men of today that they may fairly be called "modern." This great backward extension of the history of the "modern" type of human beings is the most significant point about the recent discovery by American and French anthropologists of a number of ancient skeletons in a shellmound at Mechta, Algeria. This opinion was expressed by Professor Fay-Cooper Cole, of the University of Chicago, in response to an inquiry by Science Service.

For the past three years Beloit College has been conducting excavations in France and North Africa, under a fund given by Dr. Frank Logan, Chicago philanthropist. Dr. George Collie, director of the museum at Beloit, has spent much time in the field, while active excavation has been carried on by graduate students in anthropology from the University of Chicago.

Last year Alonzo Pond, one of the American workers, found the skeleton of a child in a shell-heap of Cro-Magnon age at Mechta. This year another worker, Paul Nesbitt, took out three more skeletons, while previously a Frenchman named Debrugge had secured a skeleton there.

A careful study of the shellmound and its contents indicate that it seems to be like the Old Stone Age finds of Europe of twenty-five thousand years ago. No New Stone Age objects occur in the site, and no bones of any domestic animals were found—domestication of animals is a “modern” accomplishment. “We seem to be justified in saying that the site is pre-Neolithic, and is probably as old as the Aurignacian,” Professor Cole concludes.

The skeletons are neither Neanderthal nor Cro-Magnon. One skull, a woman's, shows Negroid characteristics, but the others appear to be rather close to the Mediterranean type, though somewhat more primitive. Fuller details will be announced when the material shall have arrived in America.—*Science*.

STUDY OF THE HARESKIN INDIANS

The prospect of studying a primitive culture, which has been maintained for thousands of years untouched by outside contacts, is taking Cornelius Osgood, graduate student of ethnology at the University of Chicago, on a 15 months' expedition to the Canadian Barren Grounds, the region around Great Bear Lake. He is *en route* to Waterways, where he leaves the railroad. The 1,000-mile trip from Waterways will be made by canoe and dog team. He expects to reach Ft. Norman, the last outpost of civilization in that region, sometime in August.

Almost nothing is known of the Hareskin Indians, which he will study, except that they are sullen and inhospitable. Two white missionaries who tried to convert them were murdered. Mr. Osgood hopes, if it is possible, to live with them during the long winter season, getting first-hand observations of their manners and customs. The difficult language of the Hareskin tribe presents a problem, but Mr. Osgood expects, if he receives a friendly reception, to make himself understood by using Athabaskan word stems. The Hareskin tribe is a member of that linguistic group.

Professor Edward Sapir, University of Chicago anthropologist, believes that this expedition presents “an almost unparalleled opportunity of studying a primitive people who have been uninfluenced

by outside cultures." It is hoped that a complete knowledge of this tribe will shed light on the development of other Athabascan tribes, particularly the Navajos, in Arizona and Mexico.

The Barren Grounds lie almost wholly within the Arctic Circle, more than 300 miles from Ft. Norman. The hardships of a winter in this region induced Mr. Osgood to make a 1,300-mile preliminary trip on the rivers north of Edmonton last summer, in order to learn what he may expect. The expedition is being financed by the National Museum of Canada.—*Science*.

RECENT INDIAN MOUND BUILDERS

The last traces of the old idea that the mound builders were a mysterious ancient race who vanished before the coming of the Indians have been very effectually destroyed by the discovery in Joliet, Illinois, of a mound filled from bottom to top with the skeletons of buried Indians, each skeleton provided with funeral gifts of European manufacture as well as the more usual stone, bone, and shell objects of native workmanship. Professor Fay-Cooper Cole, of the University of Chicago, states that so far as he is aware this is the first wholly post-European mound discovered in this country.

The mound is one of the so-called Fisher group, which have been subjected to excavation during the past few years by George Langford, a factory executive of Joliet. The other mounds have yielded Indian relics of pre-European date, one of the cultures represented being very primitive and possibly very ancient. A few articles of white man's manufacture were found near the top of one of these larger mounds, linking the history of the Indians of this region with that of French Colonial trading in the Mississippi valley.

The mound which Mr. Langford has just finished exploring had been given a somewhat superficial going over by an earlier group of amateur diggers, who found a considerable number of silver objects, including a crucifix, several spoons, bangles, and other ornaments. It was thought that everything had been removed, but when Mr. Langford dug into the mound again he discovered that the previous excavation had done little more than remove the surface. He found burials with European and Colonial funeral gifts throughout the mound and down into the ground to a depth of five feet beneath its base.

The finds include a couple of brass pots in excellent condition, one of them with a close-fitting lid, a pair of scissors, a large number of

knives bearing a French trademark, several silver spoons, and quantities of beads, buttons, pins, and other trinkets. Brass seems to have been a favorite metal; every skeleton had some brass object with it. These modern mound builders unquestionably did a lot of business with the French traders.

One of the most remarkably well-preserved specimens is a combination pocket compass and sun-dial in a brass case. The "floating" compass card swings freely on its pivot, the glass cover is unbroken, and the gnomon of the sun-dial can still be turned on its hinge.

A change in the type of burial may possibly be due to European influence. All the adult skeletons in this post-European mound lay flat on their backs, heads west, feet east. This resembles the white man's method of burial. All the other deep burials at the Fisher site, whose funeral gifts do not include European objects, were turned over on one side and drawn up into a crouching position, as primitive peoples are wont to sleep in cold weather.—*Science*.

MUSEUM OF THE AMERICAN INDIAN

The Museum of the American Indian, Heye Foundation, has been obliged to curtail its work following the deaths of two of its principal supporters. It has been necessary also to reduce the staff.

In a special statement the director, George G. Heye, explains the situation as follows:

"At the close of March, two of the Trustees of the Museum, Mr. James B. Ford and Mr. Harmon W. Hendricks, died within thirty-six hours of each other. Both had been extremely liberal toward the Museum, contributing munificently toward the purchase of valuable collections and meeting certain expenses of field work and maintenance, quite of their own free will. Their death almost at the same time compelled the Museum for an indefinite period to become inactive in field work and, therefore, in view of the fact that we did not expect to do much field work for the next eighteen months there was no necessity of maintaining an over-staffed organization.

"We do contemplate continuing our field work in Texas next fall, and also sundry expeditions to Central and South America. I may add that through the generosity of bequests made by Mr. Ford, and Mr. Hendricks our endowment fund has been increased by \$300,000, which in addition to the endowment fund already existing, will enable us to continue with the same activities as formerly—that is, our publication work and also all other departments in the Museum

with the exception, as above stated, of field work to the extent that we have been doing before."—*Museum News*.

CONCERNING THE WAI WOI

In letters to the Editor, dated New York, April 27, and London, May 28, 1928, Mr. A. Hyatt Verrill replies to Dr. W. E. Roth's strictures as summarized in the *American Anthropologist*, n.s., 30: 357, 1928. Mr. Verrill states that he visited the Wai Woi ten years before Dr. Roth and that in the interval "both the geographical habitat and the customs of the Indians have had time to alter considerably." When Mr. Verrill made his observations both men and women wove hammocks, and specimens of the bark cloth then used for garments are in the collection of several hundred pieces brought back to the Museum of the American Indian, Heye Foundation. The article criticized said nothing about dugout canoes and there was nothing in the text or captions to indicate that the Indians in some of the photographs were Wai Woi. The pictures "were used merely to illustrate the habits and customs of Guiana Indians."

* * * *

MR. LLOYD WARNER, writing from a point 200 miles south of Darwin, reports that he has returned for a second field trip to northern Australia. His field of operations includes the Roper River region and the unknown area connecting with the territory covered by Professor Spencer. His first journey resulted in measurements of 350 individuals and a study of the social organization and beliefs of the tribes in Arnheim Land around Arafura Sea. Eleven kinship systems were secured, and additional terminologies have been discovered on the present trip.

THE SECRETARY OF STATE has appointed Dr. Aleš Hrdlička, of the U. S. National Museum, a member of the cooperating committee on the part of the United States to the Seventh American Scientific Congress, to be held at San José, Costa Rica, in 1929.—*Science*.

AMONG those receiving honorary degrees from the Northwestern University on June 18 were Dr. Fay-Cooper Cole, professor of anthropology at the University of Chicago, and Dr. and Mrs. George Dick, of the McCormick Institute of Infectious Diseases, Chicago.—*Science*.

HEINRICH BRÜNING, for many years a resident of northern Peru, founder of the valuable and now nationally owned Museo Brüning

in Lambayeque, and author of an unpublished dictionary on the nearly extinct Mochica or Yunca or Eten language, published in 1922 and 1923 four pamphlets under the general title "Estudios Monográficos del Departamento de Lambayeque." These embody original documents, notes from old titles and law records, native terms, and much of archaeological as well as topographic interest. The parts that have appeared are I, Lambayeque; II, Olmos; III, Jayanca; IV, Taimi. Publication of subsequent parts, in part written, seems to have been deferred by the author's return to Germany and his illness. These accurate and valuable studies are little known even in Peru beyond the provinces described. They may be obtained from the publisher, Dionisio Mendoza in Chiclayo, for soles 2.50 each, or a Peruvian pound for the set.

MATTHEW W. STIRLING, of Berkeley, California, ethnologist and explorer, has been appointed Chief of the Bureau of American Ethnology under the Smithsonian Institution, by Secretary Abbot, to succeed J. Walter Fewkes who retired from active administrative duties last January.

The new chief brings to his office an unusually varied experience, including the organization of the largest expedition which has yet penetrated to the interior of Dutch New Guinea to study the little-known pigmy people of that region. In this expedition, which was under the auspices of the Smithsonian Institution, he had the cooperation of the Netherlands government and of the Indian Committee for Scientific Research of Batavia, Java.

In this country, Mr. Stirling has done field work in ethnology with the Pomo Indians of California, archaeological work in the Chumash and Salinan areas of California, on the Upper Missouri River, on old Arikara and Mandan sites, on Calusa and Timucuan sites in Florida. He has also conducted archaeological work in Peru on the Rimac river, and ethnological work in Peru and Brazil among the Campa, America, and other native tribes of the Upper Amazon and its tributaries. He has also pursued archaeological work in the palaeolithic caves and rock shelters of France and Spain. This is the second time Mr. Stirling has served on the staff of the Smithsonian Institution or its branches as he joined the Department of Anthropology of the U. S. National Museum, in 1921, serving as aid and assistant curator till 1924.—*Museum News*.

W. J. WINTEMBERG will search for remains of the extinct Red Indians of Newfoundland along the north shore of the Gulf of St. Lawrence from the Strait of Bell Isle to Tadoussac. It is believed that the Red Indians formerly lived somewhere in Labrador peninsula, and did not cross into Newfoundland until a few centuries ago, when they were exterminated by white fishermen and by Indians from Nova Scotia. Along this north shore he expects to find remains also of other tribes, early Algonkian people who were perhaps the forefathers of the Indians living in this area today, and Eskimos who were found with Indians along this coast during the first days of French settlement.

C. M. BARBEAU will study the ancient handicrafts and designs of French Canada, in order to determine the extent of their influence on the arts and crafts of the various Indian tribes. It is thought that many, if not most of the patterns in bead and silk work that appear on Indian specimens may not be aboriginal at all, but copied from European patterns.

J. C. BOILEAU GRANT, Professor of Anatomy in the University of Manitoba, is undertaking for the National Museum a thorough examination of the Indians of Fond du Lac, at the east end of Lake Athabaska. Besides making a complete series of physical measurements of both adults and children, he will carry out some blood tests, with the cooperation of the Department of Health, to investigate the theory that the Indians separated from the rest of the human race before the human blood underwent the two mutations that seem to have occurred in the Old World.

C. B. OSGOOD will spend a year on the lower Mackenzie river, in the vicinity of Fort Norman, studying the social and economic life, the religion and the traditions of the little known Hare and Mountain Indians who trade at that post. He will probably winter in the woods with the Indians, and return south in the summer of 1929.

DR. ALBERT ERNEST JENKS, professor of anthropology in the University of Minnesota, is head of an expedition, which left about June 10 by motor and railroad to dig for six weeks in the Mimbres Valley, New Mexico, where they expect to find traces of prehistoric culture.—*Science*.

THE NEWLY FOUNDED Northern Arizona Society of Science and Art is to maintain a museum in Flagstaff, Arizona, according to a statement just issued by the board of trustees. This museum will contain archaeological and ethnological specimens from northern Arizona and will also deal with the geology of the plateau.

Harold S. Colton is director of the new museum and the following persons have been elected to the board of trustees: Byron Cummings, acting president of the University of Arizona; T. A. Riordan, president of the Arizona Timber and Lumber Co.; H. S. Colton, of the University of Pennsylvania; C. L. Walker, superintendent of the Western Navajo Indian Reservation; V. M. Slipher, director of the Lowell Observatory; Grady Gammage, president of the Northern Arizona State Teachers College; G. A. Pearson, director of the Southwestern Forest Experiment Station; E. G. Miller, supervisor of Coconino National Forest; Robert Tally, J. C. Clarke, P. J. Moran, Mrs. Lewis Benedict, R. M. Bruchman, Mrs. Louisa Wetherill, and Del Strong.—*Museum News*.

ON THE EVENING of April 20 Dr. Barnum Brown, of the American Museum of Natural History, gave the annual public lecture before the Syracuse chapter of the Society of Sigma Xi at Syracuse University on "Prehistoric Man in America."—*Science*.

THE COUNCIL of the Royal Anthropological Institute has awarded the Huxley memorial medal for 1929 to Baron Erland Nordenskiöld, of Göteborg. He has also been invited to deliver the Huxley memorial lecture in November of that year.—*Science*.

PAUL S. MARTIN, curator of archaeology and ethnology at the museum of the Colorado State Historical Society, has returned from his second season in Yucatan as assistant archaeologist for the Carnegie Institution of Washington. While in Yucatan he excavated and completely restored a Mayan temple. He is planning to do some excavating for the State Historical Society in the southwestern part of Colorado during July and August.—*Science*.

PROFESSOR R. RUGGLES GATES, of the University of London, sailed on June 23 for Canada on a botanical and anthropological expedition down the Mackenzie river. Facilities are being furnished by the Hudson's Bay Company. He is taking a cinema film camera, and is accompanied by K. Mellanby, a young botanist at Cambridge.—*Science*.

A LETTER from Dr. Rudolph Schuller, written in San José, Costa Rica, on May 31, states that in the last year and a half he has travelled across Colombia and through certain parts of Venezuela, later going to Panama to deliver lectures at the National Institute. In Colombia he devoted special attention to the little known Indian languages in the Department of Cauca, and collected over 3,000 place names, which will constitute a valuable aid in plotting the linguistic map of that portion of Colombia. He obtained an eighteenth century Franciscan manuscript, recording the Betoye language of the rivers Putumayo and Caqueta. Dr. Schuller is now in Guatemala.

MISS ANNA H. GAYTON has been awarded a fellowship in anthropology from the Board of National Research Fellowships in the Biological Sciences.

WE NOTE with deep regret the death of Dr. Pliny Earle Goddard, Curator of Ethnology at the American Museum of Natural History, Lecturer in Columbia University, and one-time Editor of the *American Anthropologist*. It occurred in his summer home in Connecticut on July 12, 1928. He was in his fifty-ninth year. A full obituary will appear in our columns.

AT ITS MEETING on April 7, 1928, the Social Science Research Council announced a number of Grants in Aid, including the two following: to Professor T. R. Garth, University of Denver, to complete a study of Racial Psychology, \$500; to Professor Carl N. Llewellyn, School of Law, Columbia University, to complete a study on the Relation of Law to Society and the Social Sciences, \$1650.

JOHN P. HARRINGTON, of the Bureau of American Ethnology, left Washington on July 11 to continue his studies of the Mission Indians of California.

DR. TRUMAN MICHELSON, ethnologist, of the Bureau of American Ethnology, left Washington on July 6 to continue his researches among the Algonquian tribes of Oklahoma and Iowa.

THE GOLD medal of the Linnaean Society of New York, awarded to Dr. C. Hart Merriam, research associate of the Smithsonian Institution, was presented to Dr. Merriam by Dr. Frank M. Chapman, of the American Museum of Natural History, on May 30.

AN ARCHAEOLOGICAL expedition was sent by the Minneapolis Institute of Arts this summer to the Mimbres valley, New Mexico,

under the direction of Albert Ernest Jenks, of the University of Minnesota.—*The Museum News*.

AN ARCHAEOLOGICAL expedition to the Arctic is being sent out by the Smithsonian Institution. The party will go north on the Coast Guard Cutter "Northland," which sails from Seattle on May 15.

A NEW FIND of three skeletons of the famous Cro-Magnon race of stone age times is reported from the Vallee du Roc, Charente, in France. The remains were those of a man about fifty years old, of a woman, and of a youth just cutting his first wisdom tooth. They had apparently all been buried in a cave, the roof of which later fell, covering their graves still more deeply with rough blocks of stone. This rock fall had considerably damaged the skeletons.

DR. RALPH LINTON, now with the Field Museum of Chicago, has been appointed Associate Professor of Anthropology, University of Wisconsin.

PROFESSOR FRANZ BOAS is scheduled to give an afternoon address on "Migrations of Asiatic Races and Cultures to North America," at the meeting of the American Association for the Advancement of Science, in New York City.

MR. M. R. HARRINGTON began his duties as Director of Research at the Southwest Museum, Los Angeles, on September 1st.

CORRECTION

THE FOLLOWING CORRECTION of a printer's error should be noted in Dr. Loeb's article in the AMERICAN ANTHROPOLOGIST, volume 30, number 2, page 412, line 4: It is now still used for the purpose of going to the small uninhabited islands at the period when crabs (angau) are to be obtained.

INDEX TO AUTHORS AND TITLES

- ALLISON, VERNON C., In Re Jacob's Cavern, 544
- ANGULO, JAIME DE, Review by, 326
- BECKWITH, MARTHA WARREN, Hawaiian Household Customs, 1
- BLACK CARIB (GARIF), Ethnographical Notes on The, 183
- BLOM, FRANS, Gaspar Antonio Chi, Interpreter, 250
- CALPOLLI BARRIO in a Present-day Mexican Pueblo, The, 282
- CERTAIN "WRITINGS" of Northwestern Indians, 345
- CENTRAL POMO and Northern Yana Society, Notes on, 675
- CHILKAT, The Early Geometric Patterned, 116
- CHRISTMAS FIESTAS of the Cupeño, 651
- CLEMENTS, FORREST E., Quantitative Method in Ethnography, 295, Reviews by, 125, 126
- COAST YUKI, The Cultural Position of the, 112
- CONZEMICUS, EDUARD, Ethnographical Notes on the Black Carib (Garif), 183
- CREMATION and the Preservation of the Dead in North America, 214
- CULTURAL POSITION of the Coast Yuki, The, 112
- CULTURE AREAS in Madagascar, 363
- CULTURE TRAITS, Probability and the Diffusion of, 94
- DANISH CONTRIBUTION Towards the Comprehension of Eskimo Culture, A, 548
- DAVIDSON, D. S., Notes on Tête de Boule Ethnology, 18; The Family Hunting Territory in Australia, 614
- DELABARRE, EDMUND B., A Prehistoric Skeleton from Grassy Island, 476
- DENSMORE, FRANCES, The True Story of a Little Stone Image, 311; A Winnebago Explanation of Effigy Mounds, 730
- DEPOPULATION of Aboriginal America, Notes on the, 669
- DIXON, R. B., Review by, 709
- ECONOMIC ASPECTS of Indigenous American Slavery, 632
- EDWARD SANDFORD BURGESS, 481
- ESKIMO MEASUREMENTS of Implements, 349
- ESTABROOKS, G. H., That Question of Racial Inferiority, 470
- FAMILY HUNTING TERRITORY in Australia, The, 614
- FAYE, PAUL LOUIS, Christmas Fiestas of the Cupeño, 651
- FERNBERGER, SAMUEL W., Review by, 161
- FUR TRADER in Anthropology, The: and a few related Questions, 60
- GASPAR ANTONIO CHI, Interpreter, 250
- GENNA in Southeastern Asia, 580
- GIFFORD, E. W., Central Pomo and Northern Yana Society, Notes on, 675; The Cultural Position of the Coast Yuki, 112; Reviews by, 486, 491
- GLOZEL AFFAIR, The, 732
- GODDARD, CHARLES F., A Long Island Find, 349
- GREEN, LAURA S., Hawaiian Household Customs, 1
- GUNTHER, ERNA, Review by, 710

- HALL, IVAN C., A Pharmaco-Bacteriologic Study of Two Malayan Blow-gun Poisoned Darts, 47
- HANDY, E. S. CRAIGHILL, Review by, 688
- HAWAIIAN HOUSEHOLD CUSTOMS, 1
- HOUGH, WALTER, The Lead Glaze Decorated Pottery of the Pueblo Region, 243; Review by, 336
- IN RE JACOB'S CAVERN, 544
- JAMES, EDWIN OLIVER, Cremation and the Preservation of the Dead in North America, 214
- JOCHELSON, WALDEMAR, Reviews by, 490, 493, 699
- "JUMPING OVER" from West Africa to South America, 107
- KALMUKS in Belgrade, A Note on, 341
- KATZ, MILTON, Genna in South-eastern Asia, 580
- KISSELL, MARY LOIS, The Early Geometric Patterned Chilkat, 116
- KRIEGER, HERBERT W., Review by, 166
- KROEBER, A. L., Reviews by, 133, 140, 158, 337, 693, 711
- KROEBER, THEODORA, Review by, 710
- LASSWELL, HAROLD D., Review by, 319
- LAGUNA MIGRATION to Isleta, The, 602
- LEAD GLAZE DECORATED POTTERY of the Pueblo Region, The, 243
- LEHMER, DERRICK NORMAN, Review by, 131
- LEIGHLY, JOHN B., Review by, 685
- LINTON, RALPH, Culture Areas in Madagascar, 363
- LOEB, E. M., Mentawai Social Organization, 408; Reviews by, 141, 146, 705
- LONG ISLAND FIND, A, 349
- LOUTTITT, C. M., Review by, 155
- LOWIE, ROBERT H., A Note on Relationship Terminologies, 263; Edward Sandford Burgess, 481; Reviews by, 157, 317, 327, 483, 487, 714, 716
- LUTZ, H. F., Review by, 706
- MACCURDY, GEORGE GRANT, Reviews by, 329, 692
- MACLEOD, W. C., "Jumping Over" from West Africa to South America, 107; Economic Aspects of Indigenous American Slavery, 632
- MALAYAN BLOW-GUN POISONED DARTS. A Pharmaco-Bacteriologic Study of Two, 47
- MASON, J. ALDEN, Review by, 135
- MATHIASSEN, THERKEL, Norse Ruins in Labrador?, 569
- MAYA ASTRONOMIC OBSERVATORIES, Notes on Two, 434
- MAYA INSCRIPTIONS VI, 391
- MEAD, MARGARET, Review by, 151
- MENTAWEI SOCIAL ORGANIZATION, 408
- MERRIAM, C. HART, Why Not More Care in Identifying Animal Remains?, 731
- METAL WORK, The Earliest Ornamental, 465
- MOORE, RILEY D., Eskimo Measurements of Implements, 349
- MORICE, A. G., The Fur Trader in Anthropology: and a few related Questions, 60
- NELSON, N. C., In Re Jacob's Cavern 547; Reviews by, 329, 696
- NORSE RUINS in Labrador?, 569
- OJIBWA of Southeastern Ontario, Ethnological Notes on the, 659
- PARSONS, ELSIE CLEWS, Notes on the Pima, 1926, 445; The Laguna Migration to Isleta, 602

- PEABODY, CHARLES, The Glozel Af-
fair, 732
- PECULIAR TYPE of Stone Implement,
A, 314
- PHILLIPS, GEORGE BRINTON, The
Earliest Ornamental Metal
Work, 465
- PIMA, 1926, Notes on the, 445
- PREHISTORIC SKELETON from Grassy
Island, A, 476
- PREHISTORIC VILLAGE Site in Greenup
County, Kentucky, A, 268
- PRINCE, JOHN DYNELEY, A Note on
Kalmuks in Belgrade, 341
- QUANTITATIVE METHOD in Ethnog-
raphy, 295
- RADIN, PAUL, Ethnological Notes on
the Ojibwa of Southeastern On-
tario, 659
- RASMUSSEN, KNUD, A Danish Con-
tribution Towards the Compre-
hension of Eskimo Culture, 548
- REAGAN, ALBERT B., Certain "Writ-
ings" of Northwestern Indians,
345
- REDFIELD, ROBERT, The Calpolli
Barrio in a Present-day Mexican
Pueblo, 282
- RICKETSON, JR., OLIVER, Notes on
Two Maya Astronomic Ob-
servatories, 434
- RIO PUERCO RUINS, 85
- SCHENCK, W. EGBERT, Review by,
127
- SHAPIRO, H. L., Review by, 160
- SMITH, M. G., Notes on the Depopu-
lation of Aboriginal America,
669; Review by, 168
- STEWART, JULIAN H., A Peculiar
Type of Stone Implement, 314;
Pottery from Deep Springs
Valley, Inyo County, California,
348
- SUMMARY REPORT of Field Work at
Acoma, 559
- SUN WORSHIP in the Southeast, 206
- SWANTON, JOHN R., Sun Worship in
the Southeast, 206
- TEEPLE, JOHN E., Maya Inscriptions
VI, 391
- TÊTE DE BOULE ETHNOLOGY, Notes
on, 18
- THAT QUESTION OF RACIAL INFERI-
ORITY, 470
- TRUE STORY of a Little Stone Image,
The, 311
- WALLIS, WILSON D., Probability and
the Diffusion of Culture Traits,
94; Reviews by, 321, 326
- WARNER, THOR, Rio Puerco Ruins, 85
- WEBB, WILLIAM S., A Prehistoric
Village Site in Greenup County,
Kentucky, 268
- WHITE, LESLIE A., Summary Re-
port of Field Work at Acoma,
559
- WHY NOT MORE CARE in Identifying
Animal Remains?, 731
- WINNEBAGO EXPLANATION of Effigy
Mounds, A, 730
- YOUNG, DONALD, Review by, 164





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